

MIND

A QUARTERLY REVIEW
OF
PSYCHOLOGY AND PHILOSOPHY

I.—PROF. BAIN'S PHILOSOPHY.¹

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WHEN Prof. Bain was a student in Marischal College, Aberdeen, in the early "forties," the philosophy that was taught, and taught with literal adherence to the masters, was that of Reid and Beattie. In this he was duly instructed in the Class of Moral Philosophy and Logic; and although he came by-and-by to dissent from many of its leading doctrines he nevertheless derived from it an impulse to the study of psychology on an experiential basis and retained the aversion to unbridled metaphysical speculation that characterised the Scottish School. He learned here sanity and caution, and a reverence for actual fact. When, somewhat later, he came to be associated with John Stuart Mill and George Grote and imbibed the teaching of Auguste Comte on its scientific side, he made no real breach with the Scottish aim and method: he simply carried them forward, and re-examined the data on the same plan, though with greatly different results. To him, as to Reid, induction became supreme; and truth commanded his adherence only when it could be justified by experience.

But, with fundamental agreements, there were vast differences. On the one hand, he set himself to an independent analysis of mental phenomena and processes, and achieved therein a success that went far beyond anything attained by the Scottish philosophers; and, on the other hand, he carried

¹ Supplementary to my Note in MIND, No. 49, pp. 151-155.

the principle of Association thoroughly into his explanation of Mind—on its emotive, its intellectual, and its volitional side alike,—so that the conception of “faculties,” as distinct and independent entities, was swept away, and psychology was finally freed from the intrusion of metaphysics. With this was joined his insistence on the intimate relation between physiology and psychology and the necessity of making prominent the physiological reference in the handling of mind, both with the view of ascertaining the exact nature of psychical facts and of rendering mental science truly scientific. As stated by himself in the first preface to *The Senses and the Intellect*, his object was to “construct a natural history of the feelings, upon the basis of a uniform descriptive method”. For this task, his previous acquaintance with many branches of science (mathematical, physical, and biological), no less than his own natural inclination, pre-eminently fitted him. The result was a new view of the mind, consistently carried out, on positive principles, and psychology was started on lines of investigation that were to be ever more and more productive of good results.

Be it noted, then, at this stage, that Prof. Bain was, as most British philosophers have been, under the influence of the leading scientific conceptions of the moment. It may be affirmed generally that the advance in psychology in our land has very much followed the advance in physical research. The theory of sound, for instance, was the outstanding physical theory in the time of Hartley. Consequently, he proceeded to interpret mind according to the analogy, and to represent the nervous process as simply propagations of vibrations as in sound. Chemistry, in like manner, came to the front in the days of Mill. Consequently, the process of Association was interpreted in terms thereof—it was set forth as a kind of mental chemistry. So, in Dr. Bain's time, physiology was attracting much attention, and the work of Johannes Müller in particular was greatly in evidence, and there was also an awakened interest in biology. Hence, the physiological reference became prominent, and the method of natural history pointed the way to Dr. Bain's mode of procedure.

I.

The mind itself was, in the first instance, conceived as in relation to the body—its correlative or concomitant. This led to an elaborate study of the brain and nerves and to reiterated emphasis being placed on the functional unity of the

nervous system. Thus parallelism became the guiding idea—which, in one place, receives a semi-metaphysical expression thus,—“The arguments for the two substances have, we believe, now entirely lost their validity; they are no longer compatible with ascertained science and clear thinking. The one substance, with two sets of properties, the physical and the mental—a *double-faced unity*—would appear to comply with all the exigencies of the case. We are to deal with this, as in the language of the Athanasian Creed, not confounding the persons nor dividing the substance. The mind is destined to be a double study—to conjoin the mental philosopher with the physical philosopher; and the momentary glimpse of Aristotle is at last converted into a clear and steady vision” (*Mind and Body*, p. 196). Hence, a systematic plan was devised for the description of the feelings—a plan deliberately conceived and rigorously adhered to—in which their physical origin and manifestation were duly noted, as well as their mental characteristics.¹

Dr. Bain's view of the activity of the mind was conditioned by the great stress that he put upon muscular sensibility. He started with the muscular sense, and posited a native spontaneity of the system—a spontaneity that is not dependent upon external stimulus, but that originates in the fulness of the nervous centres. It is the discharge of surplus energy, effectuating movement, and leading thereby to experiences of comfort or discomfort, of pleasure or pain. In this we get the origin of the will; for movements that give pleasure, although they are at first random, are persisted in and so come to be sought after, while those that give pain are desisted from or avoided. In connexion with the muscular sense, also, was raised the question of the sense of innervation. It was Bain's contention that “as the nerves supplied to the muscles are principally motor nerves, by which the muscular movements are stimulated from the brain and nerve centres, our safest assumption is, that the sensibility accompanying muscular movement coincides with the *outgoing* stream of nervous energy, and does not, as in the case of pure sensation, result from any influence passing inwards, by incarrying or sensitive nerves”². The tendency in recent times has been to lay the stress the other way—that is, on the afferent impressions and not on the efferent discharge of energy, and, while some have emphasised the joint-surfaces, others find the solution in tension of the skin. Nothing that has been advanced on these lines seemed

¹ See *The Senses and the Intellect*, 4th ed., p. 74.

² *Ibid.*, p. 79.

conclusive to Dr. Bain ; and, in face of the fact that feelings of expended energy are to our consciousness entirely different from and even opposed to sensations or passive feelings, he continued to maintain his position : " no other hypothesis so well represents the total opposition of nature between states of energy exerted and states of passive stimulation ". Yet, he quite realised that the question is one for physiology rather than for psychology, and that the determination of it one way or another does not affect " the evidence of our subjective analysis ". This comes clearly out in the latest edition of *The Senses and the Intellect*, where the statement of the previous edition is given in an amended form.

Still connected with the active side of the system is the importance that Prof. Bain attaches to the Instincts, as primordial elements of mental life. The term " instinct " is here used, however, in a wide sense, so as to include, among other things, reflex actions and primitive combined movements. All the kinds of instinct are characterised by this, that they are native to the individual, serviceable to his being, and not gained by experience, although, of course, they need not all appear full-blown at the very opening of the individual's life. Their significance as primitive endowments on which education or acquisition proceeds comes out when we consider their connexion with pleasure and pain. This is given in the Law of Self-conservation, *viz.*, " that states of pleasure are connected with an increase, and states of pain with an abatement, of some, or all, of the vital functions ". Supplementary to this is the Law of Stimulation, determining the limits of pleasurable feeling both in the case of the natural stimulants of the senses and the emotions and also in the case of narcotics and drugs. Its purport is, that " we possess a certain amount of nervous vigour or irritability, which is converted into the full actuality of pleasure, only when impelled by shocks that have no nutritive tendency, but merely draw upon, and consume, the accumulated power. If we apply stimulants, up to a certain point, we do not dissipate force beyond what will be repaired ; if we fall short of that point, we miss the pleasure that our frame is able to sustain ; if we exceed the point, we run into a declension or a degeneracy. It would seem that we can afford both the natural stimulation of the senses, and a certain amount of stimulating drugs, and yet not over-draw our allowance of nervous power."¹ In this sphere of investigation Dr. Bain practically led the way in Great

¹ *The Senses and the Intellect*, 4th ed., p. 316.

Britain, and his teaching has greatly furthered the advance of psychology.

But now comes the mind's activity in relation to the intellect. Dealing with sensations that come to it from without, the mind has the twofold power of retention and of discrimination regarding them,—that is the basis of the intellect; and “no law of the intellect appears to be more certain than the law that connects our discriminating power with our retentive power. In whatever class of subjects our discrimination is great—colours, forms, tones, tastes—in that class our retention is great.” The mind, then, is not purely passive, but is essentially active: even feeling is not bare passivity, for it involves consciousness of change, and that means discrimination.

This introduces the Law of Relativity, which plays such a prominent part in Bain's psychology. The statement of it is after the type of the older psychologists; but the use made of it is special to the writer. It is the one commanding principle, pervading the whole of our mental acquisitions. “An object,” it is said, “has no meaning without a subject, a subject none without an object. One is the complement or correlate of the other; drop the one to exalt the other into prominence, and you behave like him who could cancel the south pole of a magnet to make it all north. Subject and object are one of the innumerable couples, mutual foils, polar pairs, coined among the universe of our impressions as portions of our knowledge. An everlasting light in the eye would be equivalent to no light at all; it is the privative darkness that keeps us conscious of, or mentally awake to, positive illumination. . . . An absolute object or an absolute subject is a pure absurdity, irrelevance, or impossibility. Not more so, however, than light without darkness, redness without any other colour, high without low, straight without curved, greater without less.”¹ So too with feeling. “The sensation of heat has no absolute character; there is in it a transition from a previous state of cold, and the sensation is wholly relative to that state. It is known, with regard to the feelings generally, that they subsist upon comparison; the pleasure of good health is relative to ill health; wealth supposes comparative indigence.” It is obvious that the statement here is in some respects extreme, and Dr. Bain himself admitted this when he allowed that there is point in Dr. Ward's criticism that “the transition need not be from heat to cold, or *vice versâ*: it can equally well take place from

¹ *The Emotions and the Will*, 4th ed., p. 574.

a neutral state, which is indeed the normal state, of neither heat nor cold. . . . Again, suppose a sailor becalmed, gazing for a whole morning upon a stretch of sea and sky, what sensations are implicit here? Shall we say yellow as the greatest contrast to blue, or darkness as the contrary of light, or both?"¹

The doctrine of Relativity was bound up with Bain's conception of Consciousness, and led to the elaborate efforts in *The Emotions and the Will*, in the *Dissertations*, and elsewhere, to define consciousness, or, at any rate, to ascertain its nature and characteristics with some degree of precision. He viewed the term as a collective name, and used the defining expedients of antithesis and discrimination, as well as historical reference, to make plain what this signified; and he was explicit in maintaining that "consciousness" should not be extended into "self-consciousness," unless by "self" is simply meant our subjective, in contrast to our objective, attitude in experience: in any metaphysical sense, it was to him an unmeaning word.

The relation between the senses and the intellect was brought out explicitly in Dr. Bain's doctrine of the seat of revived impressions. The tendency of ideas to work themselves out into actuality was to him very significant, and it coincided with the phenomenon of "the fixed idea" in enforcing the view that, in resuscitation, "the renewed feeling occupies the very same parts, and in the same manner, as the original feeling, and no other parts, nor in any other assignable manner".² This was to identify the revived with the actual feeling, and thereby was of practical value in enabling us, in some measure, to localise the processes of thought and thus to shorten our labour by permitting us to transfer much of our knowledge of the one to the other. "The properties that we find to hold good of sensation in the actual, we may, after a certain allowance, ascribe to the ideal. Thus the qualities of the sense of sight in any one person, as, for example, its discriminating power, would belong likewise to the visual ideas. The senses are, in this way, a key to the intellect."

Given, then, sensation and instinct and the spontaneity of the system, and given the mind's native power of retentiveness and discrimination, how is our knowledge, and ultimately our whole mental structure, built up? It is done by Association, working in the two forms of Similarity and Contiguity.

¹ Article "Psychology" in *Encyc. Brit.*, p. 49.

² *The Senses and the Intellect*, 4th ed., p. 356.

In this way, Dr. Bain was able to dispense with the treatment of the Intellect in the then-recognised fashion by "faculties" and to present mind as a unity, working in definitely ascertained ways and according to laws that might be scientifically determined. The stress of the effort lay in tracing the origin of such notions as space and time, and in explaining how we reach the conception of an external material world. It was a difficult and hazardous task; but the execution of it (as all will admit) was done with consummate skill and with great fulness, and, whether the elaboration be accepted as wholly satisfactory or not, it will stand as a monument of psychological ability of extraordinary penetration and vigour and will have to be taken account of for many a day to come. The doctrine was laid down and largely worked out in the very earliest edition of *The Senses and the Intellect*; but, like other of Dr. Bain's doctrines, it underwent development, and every new edition, embodying fresh research from many quarters, added something to the exposition of it and amended the expression at this point and at that. But it was reserved for the latest edition to lay stress on the higher instincts as a basis of our intellectual power, and, therefore, as significant in the present connexion. Here is brought in a direct reference to Heredity as necessary for the full explanation of our cognitive acquisitions. In earlier days, he had represented the development of the mind mainly from the standpoint of the individual's experience. Now he realised that the experience of the race counts for much, and must be taken into our calculations in estimating the growth of our higher notions. Take, for instance, Space. "Our feeling ourselves at home in the external world, from the date of our earliest recollections, implies a vast intellectual endowment, however it be accounted for. That much of it is engrained in us at birth is proved in a variety of ways; the intelligent reading of expression being not the most decisive. In regard to it, the salient circumstance is the inadequacy of our education during the first three years to lead us up to what our consciousness can attest as our power of conceiving the external world at that date. . . . The conclusion arrived at was, that the process could not be completed within the compass of our infant education; and that the accumulated experience of previous generations, hereditarily transmitted, would alone account for the result."¹ There can be little question that by thus definitely recognising heredity he greatly strengthens his case.

¹ *The Senses and the Intellect*, 4th ed., pp. 332, 398: see also 686.

We next expect him, in handling the growth of knowledge in the individual, to bring prominently forward the other great social factor, *viz.*, the formed language into which the child is born and which so largely facilitates his acquisitions. This, however, he does not do, and we note the omission. Nor does he, in dealing with Perception and its problem, keep separate the psychological from the epistemological aspect. This is somewhat surprising, considering how exact he was in keeping the different sciences and standpoints apart and how strongly he insisted on the necessity of such demarcation in the interest of exposition and of clear thinking alike. But everything could not be done at once; and I have little doubt that, if his great psychological treatises had seen the light for the first time to-day, instead of in 1855 and 1859, this separate handling would have been accorded. We see quite well that he appreciated the distinction from what he has said in the *Dissertations* and elsewhere in later references.

Keen as Dr. Bain was in his perception of critical points and ever ready for discussion, it was characteristic of him that, neither in his writings nor in his teaching in the class, did he, like many of his predecessors (*e.g.*, Hamilton), give inordinate attention to the treatment of the intellectual controversies. The problems had all a real interest for him; but he felt that psychology itself must be far wider than a mere handling of selected questions—which frequently, indeed, appeared to him to be merely an ingenious attempt to solve puzzles. The puzzle oftener than not (*e.g.*, that in connexion with the perception of an external material world) arose, so he conceived it, from a distorted standpoint or from the inadequacy of language to express the situation as actually experienced. Hence his insistence, rigorous and reiterated, on the necessity of defining one's terms and of bringing the abstract to the test of concrete particulars (to him, as to Kant, examples were “the go-cart of the understanding”); and hence his regard for such a thinker as Samuel Bailey, to whom definition and the concrete were everything, although his philosophical conclusions might sometimes be disputable and even distasteful. Hence, also, his habit, in examining a new work on psychology, of asking at the very outset whether in it “all the important faculties, or modes of cognition, are brought into fair or proportionate discussion, and whether the laws and processes are introduced in such manner and place as to be elucidated to advantage”. According as the writer stood this test or failed under it, he made a favourable or an unfavourable impression. Neverthe-

less, when he published his *Mental and Moral Science*, he developed his exposition of "Nominalism and Realism," of "Experience and Intuition" as competing sources of knowledge, and of "External Perception," appending an historical account of each. This was because he was now writing mainly for the convenience and requirements of students, and so wished to be helpful in every way to the learner; but even then he took care not to obscure his general presentation of the psychological principles and topics. The historical surveys themselves have been found to be of real use; and it is noteworthy that they were the anticipation of a right method which has only now been fully worked out by Janet and Séailles—the method, namely, of treating the problems of philosophy historically, instead of swamping them in a general history of philosophy.

II.

The principles thus adequate to the explanation of senses and intellect are equally applicable when next Prof. Bain proceeded to the emotions and the will. Assimilating emotion to sensation, he was able to apply to the more complex the same natural history method of description that he had so strikingly used in connexion with the simpler, and he reasserted the necessity of taking due account of the physical or bodily expression. In characterising emotion itself, the subjective aspect must be supreme, and the determination of this is got by introspection—on this point he was ever explicit. But he insisted also that we should aim, as far as possible, at gauging quantity in feeling, for the more accurately we can do this the nearer do we approach the characteristic of an exact science; and the estimate of quantity is largely dependent on the objective manifestation. On the other hand, he did not regard it as possible to give, in the strict sense of the term, a classification of the emotions—certainly not such a classification as natural history gives of animals or botany of plants,—so that you might achieve a graded system and settle once for all the order of exposition. All that could be done—at any rate, all that he himself attempted—was to arrange the emotions in certain definite groups or genera (some simple, others compound), and to offer an analysis and characterisation of each, although he felt and frequently said that, if an attempt were made at a proper scientific classification, it must found upon the great contrasting couple of Love and Anger. His analysis of the

various kinds of emotion is subtle to a degree, and marks an epoch in British psychology, having nothing to compare with it at the time when it appeared save that of Dr. Thomas Brown, which it soon superseded, though Dr. Bain himself thought highly of Brown and, in one of his later utterances (speaking of Brown's handling of a point in natural theology), pronounced him to be "one of the acutest minds that ever discussed this or any other theological thesis".¹ Much of Bain's work in this connexion has passed into the current psychologies, and no modern treatment of this department of mental science can pass by without consideration his presentation (say) of Tender Emotion or of the Ästhetic Emotions.

Great care was expended by Bain on the elaboration of the treatment of Sympathy; and his views on this topic underwent development, as seen clearly in the successive editions of *The Emotions and the Will*, as also in the fourth edition of *The Senses and the Intellect* (p. 362), where the inadequacy of "the fixed idea" to explain sympathy is dwelt upon. He was exceedingly explicit in his advocacy of the existence of disinterestedness in human nature and would not allow that our altruistic and extra-regarding acts could be resolved into selfishness or regard to reward or the aiming at ulterior pleasure. This gave a unique character to his position, inasmuch as his general principles required that pleasure and pain should be the ultimate test of action. His contention was: "So far as I am able to judge of our disinterested impulses, they are wholly distinct from the attainment of pleasure and the avoidance of pain. They lead us, as I believe, to sacrifice pleasures, and incur pains, without any compensation. . . . It seems to me that we must face the seeming paradox—that there are, in the human mind, motives that pull against our happiness. It will not do to say that *because* we act so and so, *therefore* our greatest happiness lies in that course. This begs the very question in dispute. . . . This is the only view compatible with our habit of praising and rewarding acts of virtue. If a man were in as good a position, under an act of great self-denial, as if he had not performed it, we might leave him unnoticed. If he has rather gained than lost by the transaction, he could dispense with any reward from us."²

Not less significant was his strong and consistent adherence to the doctrine that Malevolence is native to human

¹ *Dissertations*, p. 5.

² *The Emotions and the Will*, 4th ed., pp. 295, 296.

nature and one of the most powerful factors in it. It is here that his attitude towards the Evolution Theory becomes very interesting. It was in relation to the Emotions that he first declared himself on this point. Recognising that the theory must ultimately depend for its support on the evidence that can be adduced in its favour, he keenly urged that the nearer acquisition can be assimilated to instinct the stronger will the probability in favour of evolution be. Accepting, then, the theory as a working hypothesis, he allowed that it had a sphere of application in the case of the emotions, but a restricted one. It could explain certain things, and there were certain emotional phenomena that had fresh light thrown upon them by this hypothesis. A great testing case was that of Anger. What special light, then, can evolution throw on Anger? and what in Anger seems beyond its power of explanation? Take the species of anger known as Revenge. "The gratification of Revenge, if illustrated by the hypothesis of Evolution, carries us back to the predatory side of animal life. The struggle for existence involves at once peaceful co-operation and warlike antagonism; and if the one fact is the sufficing fountain of the pleasure of love, the other may be accounted the remote source of the pleasures of hatred and revenge. . . . Granting the evolution hypothesis, we can easily suppose the hereditary transmission of the predatory habits and of the satisfaction accruing from all that has to do with killing both prey and rivals. We are still, however, some way from the essential pleasure of malevolence. We have plenty of the reality of malevolent infliction without the sentiment. In fact, the full-grown sentiment does not appear necessary to the end in view. All that is needed is the impetus to seize and devour a sufficient number of animals to gratify appetite; to take pleasure in the prospect and in all the circumstances and signs of the effect; and finally, to destroy or weaken rivals and whoever stands in the way of the animal's gratifications. The added pleasure of torturing another animal is not called for by the situation; and the feeling at work is not so much being injured as being thwarted. . . . The predatory impulse, therefore, does not involve the pleasure of knowingly causing pain; but probably prepares the way for that refinement, at the proper stage".¹ Other emotions, in like manner, such as Love and Fear, have light thrown upon them by Evolution; but in every case there is a residuum—a something that eludes

¹ *The Emotions and the Will*, 4th ed., pp. 65, 66.

its grasp. On the other hand, there are emotions that scarcely come under the operation of the hereditary principle: such, for instance, are those connected with Property and with Liberty, and, above all, the Moral Sense. Of this last it is maintained that, in so far as it is connected with will, sympathy, and the leading emotions, it may be explained on the theory of development, but "the finishing stroke" in it "is due to Education and Authority," and this "constitutes the moral sentiment a distinct and peculiar phenomenon, different from all the other exercises of Will, Sympathy, and Emotion, or any compounds of these".¹

When we come to the Will, we see the significance of the stress laid at the beginning on the primordial activity of the physical system, with the two laws of Conservation and Stimulation. Bodily Movements, spontaneously originated, come by-and-by to be co-ordinated and controlled, under the motives of pleasure and pain. This seems corroborated by Evolution, which assumes the three grand postulates of Spontaneity, Conservation, and Retentiveness, and helps towards accounting for such voluntary manifestations as Effort and the graduation of expended Energy. From this as a beginning, the growth of the will is traced, first through volitional associations with the various senses, and, next, through the ascending stages of command over the feelings and emotions, motives or ends, deliberation, resolution, effort, until the highest phase is reached and will attains the stability and strength that is found in the matured experience. The whole process is the result of association, and is explicable on associationist principles. In this way, the handling of the Will was put on a different platform from what it had previously occupied in current treatises on the subject. It had been customary to contract the view, and to concentrate attention on the troublesome problem of the Will's freedom. That question appeared to Prof. Bain to be a mere metaphysical puzzle, originating in the inadequacy of language to cope with the facts of our experience, and not by any means deserving the prominence and importance that had been accorded it. He, consequently, widened the outlook, and thereby gave a fresh impulse to psychology at this point. A new direction was given to the study of the subject, significant for the future, when the attempt was thus made "to ascertain the nature of the faculty itself, its early germs, or foundations, in the human constitution, and the course of its development, from its feeblest indications in infancy to the maturity of its power".

¹ *The Emotions and the Will*, 4th ed., p. 57.

Note must be taken at this point of Dr Bain's handling of Belief. He is peculiar among psychologists in laying the stress, not on the intellectual, but on the volitional, factor in the process, and so in treating the subject under Will. In his analysis, he places emphasis on two points—(1) on preparedness to act as the test of belief, and (2) on primitive credulity as its essential characteristic. At first, we believe everything; and we should go on in this way indefinitely, were it not that we are met by some check or hindrance—are aroused by some shock of contradiction. "The supposition underlying belief is that we are working to a lead, following out some end, by the means that experience suggests, and that, so long as we are successful, we raise no questions as to truth or falsehood; we believe without knowing it. . . . The pristine assurance is soon met by checks; a disagreeable experience leading to new insight. . . . Thus, the vital circumstance in belief is, never to be contradicted—never to lose *prestige*. The number of repetitions counts for little in the process: we are as much convinced after ten as after fifty; we are more convinced by ten unbroken than by fifty for and one against."¹ It is not, then, as James Mill supposed, a case of inseparable association: inseparable association follows the number of repetitions, belief follows the absence of contradiction.

In Ethics, Dr. Bain accepted fully the utilitarian position, but gave a distinct turn to it by his pronounced advocacy of the existence of disinterestedness in human nature—to which reference has already been made. To him Conscience was, of course, not a simple and intuitive faculty, but a compound and derivative thing, whose nature could be analysed and its genesis traced. Society played the prominent part in the elaboration; and the authority of the State, legislating for the community, and enforcing its commands by rewards and penalties, was what gave rise to the characteristic traits of conscience in the individual.² But though derivative and not original, though compound and not simple, Conscience does not thereby lose its ethical value. That value depends upon its power to promote man's welfare and happiness. It is neither better nor worse for being derivative, nor would it be better rather than worse for being simple; but its significance is found in its efficacy to discharge the functions specific to it. In this way, Ethics is viewed in a distinctively practical and so in a distinctively English manner—from the

¹ *The Emotions and the Will*, 4th ed., p. 512.

² See *Mental and Moral Science*, "Ethics," part i., ch. iii.

standpoint of utility; and its ideality is thrown into the background. Indeed, the idealistic Ethics was repugnant to Bain. With such teaching as that of Green or Martineau he had little sympathy: he regarded it as visionary and elusive, and he disliked it as being based on the notion of man's native dignity or greatness. Such a notion he held to be unconfirmed by experience and suitable simply to minister to self-conceit; and he regarded it as having retarded the scientific handling of Ethics: he thought, in particular, that it had done much harm in connexion with the problem of Free Will. "Of sources of bias," he says (see *Practical Essays*, pp. 29-32), "prejudices, 'Idola,' 'fallacies *a priori*,' this may be allowed precedence. . . . A philosopher of our own day—Sir W. Hamilton—has placed on the title-page of his principal work this piece of rhetoric: 'On earth, there is nothing great but man; in man, there is nothing great but mind.' Now one would suppose that there are on earth many things besides man deserving the appellation of 'great'; and that the mechanism of the body is, in any view, quite as remarkable a piece of work as the mechanism of the mind. . . . Such gross pandering to human vanity must be held as disfiguring a work on philosophy. . . . This originating of a point of honour or dignity in connection with our Will has been the main lure in bringing us into the jungle of Free-Will and Necessity. . . . The weight of the reasoning is, I believe, in favour of necessity; but the word carries with it a seeming affront, and hardly any amount of argument will reconcile men to indignity." This attitude, no doubt, deprives Bain's ethics of the stimulating power that attaches to the idealistic ethics; but it was the logical consequence of his fundamental principles, and it enabled him to express his positions in scientific form.

In *Mental and Moral Science*, he supplemented his general ethical opinions by a series of sketches of ethical systems from Socrates downwards—partly with a view to elucidate the subject, but partly also for the convenience of the student, for whom his manual was primarily intended. These sketches have been criticised as dry and unattractive. So far as the objection has point at all, the reason is not far to seek. A man's philosophy must be taken in connexion with the man himself (his individuality counts for much), and the parts of it must be viewed in relation to each other and to the whole. But here, inasmuch as we have simply summaries or abstracts, upon a uniform and definite plan, the individuality of the philosopher is necessarily eliminated, and the relation of his ethical theory to the rest of his specu-

lation is virtually ignored. The best testimony, however, to the value of this historical section is that it was soon found to be a welcome substitute for Mackintosh's *Dissertation on the Progress of Ethical Philosophy*, which formerly held the field, that it is not yet superseded even by Sidgwick's *Outlines of the History of Ethics*, and that many students have studied it with interest and expressed their indebtedness to it.

III.

A distinguishing feature of Prof. Bain's philosophy was its pre-eminently practical character. It lends itself in an exceptional degree to varied application, more particularly in the sphere of education—as witnessed by his own educational writings, especially the *Rhetoric* and *Education as a Science*. In the preface to the latest edition of *The Senses and the Intellect*, he himself says: “The plan and object of the present work, as well as of its continuation *The Emotions and the Will*, having been conceived more exclusively with a view to practical results, I have seen no ground for materially altering the expository order and the proportions, in the laying out of the details”. Everything was to him conditioned by regard to “practical results”. It was mainly for this reason—more specifically in order that he might advance philosophy in all its branches and stimulate British psychologists to research and “practical usefulness”—that he took the bold step, eight and twenty years ago, of originating MIND. In the last number of this journal, I called this a “noble act”; and so it was. In the first place, the venture was absolutely new and involved considerable self-sacrifice: the originator stood alone, for no one else in this country was public-spirited enough to attempt the production of a philosophical review. In the next place, it involved an immense amount of preliminary trouble and worry, which any one whose philosophical reputation was already securely established might naturally have shrunk from. There was much apathy to be met; and even some philosophers from whom he expected encouragement stood aloof. In the last place, it was not an enterprise likely to add in any way to the originator's income, but, on the contrary, was likely to cost him much even in money. As a matter of fact, it entailed an annual pecuniary loss, so that, when the sixteen years of his sole proprietorship had expired, it was found that he had sunk several thousands of pounds in it. But his enthusiasm carried him forward, and the thing was done. Writing in 1891, and bidding farewell to his readers, the first Editor of

MIND, referring to the start of the enterprise, said : "That effort, as some know already, has been rendered possible by the public spirit of one man. Why should it not now be openly told, that but for Prof. Bain's generous initiative in 1876 this country might still be without a philosophical organ? Let the fact be borne in mind the next time it occurs to any one to remark the limitations of homebred English thinking. An English psychologist of the traditional stamp was the first to project, and single-handed has ever been there to sustain, a Review open to all the serious philosophical thought of the country and seeking new lights from the whole world around."¹

Dr. Bain was fortunate in having as his chief counsellor his former pupil and valued friend G. Croom Robertson, who not only aided greatly in planning the project and in securing contributors, but also acted as Editor during all the time of Dr. Bain's proprietorship. Between them, they made a splendid beginning in January, 1876, and, all along to the close, they were able to keep up the success which the first number achieved. The object of the journal is partly given in its title and its sub-title, which were chosen wittingly and after much deliberation. They were intended to indicate in brief the scope and subject-matter, and, in particular, to declare the readiness of the projector to welcome reasoned contributions in all lines of philosophy, while laying greatest stress on psychology as the basal science. But further, and more fully, the object was declared in a preliminary prospectus which was widely distributed at the time, and, again, in the Editor's prefatory words in the first number. There we see the broad spirit in which the project was devised, and the same lines on which it was proposed to proceed. Although mental science was to be supreme, speculation was to be encouraged in every department, so be it that it were legitimated (directly or indirectly) by experience. Starting from experience, it might take as high a flight as ever it cared provided it returned to experience again. So, too, the interest of the various sciences allied to psychology (Logic, Æsthetics, Ethics) were to be duly attended to, and the application of psychology to the purposes of the Educator. It was a broad and liberal-minded programme; and it was worked out impartially, so that no one could say that the journal existed simply for propagating the views of a single school.²

¹ MIND, 1st Series, vol. xvi., p. 557.

² See also Croom Robertson's article on "Psychology and Philosophy," in MIND, vol. viii., 1st Series, pp. 1-21—reprinted in his *Philosophical Remains*, pp. 250-273.

The successful execution of the plan depended mainly on two things—on the energy of the proprietor and the editor, and on the variety and efficiency of the contributors. The energy was conspicuous from the beginning. If, on the one hand, it could hardly have been possible to secure a more competent and enthusiastic editor than Robertson, it would have been difficult, on the other hand, to find any one who worked more vigorously and contributed more copiously of his best than did Prof. Bain. He expounded doctrines, he set forth new views, he discussed problems, he reviewed books; and the magnitude of his work is only partially seen from the volume of *Dissertations* that was recently published. These are chiefly reprints from MIND (including two articles contributed to the second series); but a considerable part of his book on *Education as a Science* appeared there, as also did portions of other treatises, as well as many smaller philosophical papers that have not been republished anywhere.

But now as to contributors. A glance at the Index of the first series of MIND shows that very many of the great names in philosophy of the last thirty years were enlisted in the service, although names are wanting that one would have expected to find present. Young men, too, came to play their part; and it is to the credit of MIND that it opened its pages so freely to young writers who, though doing good work, were as yet unknown to the world.

What philosophy would have been at this moment in Great Britain had there been no MIND journal started, it is, of course, impossible to say; but it is safe enough to affirm that, through it, philosophical interest in our land has been immensely increased and splendid work has been done in all the departments of mental science, which must command the gratitude of every one who has the welfare and the progress of philosophy at heart. There is evidence also that MIND has stimulated other countries; and, perhaps, it may not be too much to claim that the awakened interest in psychology that soon after its inception began in Germany was, in part at least, owing to it. And the impulse has not yet spent itself. May we not see it operative in *The British Journal of Psychology*, which has just made so brisk a commencement? Bain did not live to see this new development; but it would have met with his full approval, for his interest in experimental psychology was great, though he had a keen perception of its limits.

IV.

Prof. Bain's is a name in philosophy that cannot die. More especially will it be associated with psychology. What British psychologists have been able to accomplish during the last half-century has been in no small degree owing to the lead that he gave through *The Senses and the Intellect*, published in 1855, and through *The Emotions and the Will*, published in 1859. The extent of his influence it is impossible to estimate. It has gone abroad into many lands through his writings—many of which have been translated into diverse tongues. It emanated from his teaching as a professor, and lives in pupils who reproduce his spirit and his method. It is felt by others, not a few, who have attained renown in psychology, but who owe much to him for early counsel and encouragement. But, perhaps, the best testimony to his influence, and certainly the most striking proof of his originality, lies in the fact that any exposition of his distinctive positions must needs seem to the modern psychologist conversant with the subject a mere enunciation of commonplaces. The doctrines are commonplaces now, but they were new, and many of them alarming, when they first appeared. Hardly less significant is the fact that to some those doctrines are a perennial subject of criticism. That is a high compliment. People criticise only what they feel to have weight and potency: harmless, even though distasteful, teaching is passed by in silence. Prof. Bain himself was quite alive to the fact that many of his positions might be superseded in philosophy: he made no exaggerated claim to finality or to infallibility. In August, 1892, when speaking in public on the occasion of the unveiling of his bust placed by the community of Aberdeen in the Public Library, he said: "In the philosophy of the mind, the displacement of one system by another is proverbial. All that we can count upon, when we have done our best, is that some stones may be found to fit into the structures of our successors. . . . Even for the present, I am far from securing unanimity of judgment among those that have taken the trouble to follow me. That I do not complain of: it is not the business of any man to bring round the whole world, or the tenth part of it, to particular conclusions on debated questions. It is enough to have helped a number of people to draw their own inferences, and, in so doing, to improve on their previous knowledge. It is by the testimony of such that a man can be adjudged as an immediate benefactor to his kind, and the presumption is that the influence may last some time longer."

With confidence it may be asserted that there are stones in Dr. Bain's system that will be used, for long time to come, in the structures of his successors ; and few will refuse to accord him the merit of having been "an immediate benefactor of his kind". "Pre-eminent," as the present Editor of *MIND* has phrased it, are his services to psychology and philosophy ; and when the history of psychology comes to be written in English, a commanding place will be assigned to him among those who advanced the science of mind in the nineteenth century, and due acknowledgment will be made of the distinctive value of his work.

II.—HEGEL'S TREATMENT OF THE CATEGORIES OF QUANTITY.

BY J. ELLIS McTAGGART.

IN this paper, as in my previous papers on the details of Hegel's Logic (MIND, April and July, 1897; January, 1899; April, 1900; October, 1902), I shall consider one of the nine secondary divisions of the process. I shall follow, in the first place, the exposition in the Greater Logic, and add a few words on the rather different treatment adopted in the Encyclopaedia.

Quantity (*Quantität*) is the second division of the Doctrine of Being. It is divided as follows:—

I.—QUANTITY (QUANTITÄT).

- A.—PURE QUANTITY (DIE REINE QUANTITÄT).
- B.—CONTINUOUS AND DISCRETE MAGNITUDE (KONTINUIRLICHE UND DISKRETE GRÖSSE).
- C.—LIMITATION OF QUANTITY (BEGRENZUNG DER QUANTITÄT).

II.—QUANTUM (QUANTUM).

- A.—NUMBER (DIE ZAHL).
- B.—EXTENSIVE AND INTENSIVE QUANTUM (EXTENSIVES UND INTENSIVES QUANTUM).
 - (a) *Their Difference* (*Unterschied derselben*).
 - (b) *Identity of Extensive and Intensive Magnitude* (*Identität der Extensiven und Intensiven Grösse*).
 - (c) *The Alteration of Quantum* (*Die Veränderung des Quantum*s).

C.—THE QUANTITATIVE INFINITY (DIE QUANTITATIVE UNENDLICHKEIT).

- (a) *Its Notion (Begriff derselben).*
- (b) *The Quantitative Infinite Progress (Der Quantitative Unendliche Progress).*
- (c) *The Infinity of Quantum (Die Unendlichkeit des Quantum).*

III.—THE QUANTITATIVE RATIO (DAS QUANTITATIVE VERHÄLTNISS).

A.—THE DIRECT RATIO (DAS DIREKTE VERHÄLTNISS).

B.—THE INVERSE RATIO (DAS UMGKEHRTE VERHÄLTNISS).

C.—THE RATIO OF POWERS (POTENZENVERHÄLTNISS).

It will be noticed that Quantity is used in an ambiguous sense here, since it is the name both of the whole secondary division, and of the first of the tertiary divisions contained in it. The tertiary division might be distinguished if we gave it the name of Indefinite Quantity, which, as we shall see, would be appropriate to it.

The treatment of Quantity is not one of the most successful parts of the dialectic. Hegel devotes a larger proportion of the Greater Logic to it than he does to any of the eight other divisions. Yet the transitions are frequently obscure, and often appear to owe their obscurity to excessive compression. By far the greater part of the 185 pages which are employed on Quantity are occupied with notes on collateral points. Some of these, indeed, throw additional light on the main argument, but the rest only contain criticisms of Kant's views on Quantity, and of certain mathematical doctrines. Hegel is never at his best when criticising Kant, and this is eminently the case here. The mathematical discussions, again, are too purely technical to give us much assistance in comprehending the course of the dialectic. Moreover, it may possibly be said that on this occasion, as on some others, Hegel yielded to the temptation of criticising a science whose contents were not adequately known to him.

It is easy, however, to exaggerate the effect of such faults in destroying the value of this part of the dialectic. The transitions, though in some cases obscure, can, as I shall

endeavour to show, be understood. And if they are valid, the mathematical mistakes, if such there are, are of small importance. The main object of the dialectic, after all, is to reach the Absolute Idea, and so to demonstrate what is the true nature of reality. Thus the principal function of the lower categories is to lead on to the Absolute Idea. And for this it is only requisite that each of them should validly follow from the one which precedes it, and lead on to the one which follows it.

Now the question whether Hegel's various categories of Quantity do perform this function is not affected by any mathematical mistakes which he may have made, nor can it be settled in the negative by any mathematical criticisms. The only relevant inquiry is whether Hegel was justified in starting the dialectic with the category of Pure Being, and whether the validity of the various categories of Quantity can be shown to be involved in the validity of the category of Pure Being. And this inquiry is a matter for metaphysics, and not for mathematics.

It is true that Hegel's main aim in the dialectic was not his only aim. He wished, not merely to deduce an absolutely valid conception of reality, but to account for other less perfect conceptions, and to range them in the order of their relative validity. He probably believed that the categories with which he dealt in the sphere of Quantity were identical with the fundamental notions of mathematics. In so far as this is not the case, he must be considered to have failed in his subordinate purpose, and, in so far as he has failed, to have introduced additional obscurity by the fact that he has called his categories by the names of the mathematical notions.

But the purpose in which he may have failed is, as I have said, only of subordinate importance for him. And, even in that purpose, his failure would not be a sign of any metaphysical flaw in his system, but simply of mathematical ignorance. If the dialectic process is correct, it will be true of all mathematical conceptions, as of all others, that the way in which we can judge of the degree of their validity will be by means of the dialectic process. If the ideas are themselves stages in that process, the place which they occupy in it will give us their relative validity. If they are not stages in the process, their relative validity can be found by ascertaining the point in the dialectic at which it becomes clear that they are not absolutely valid. For example, as the dialectic passes away from Quantity, it becomes clear that no idea of pure mathematics can be absolutely valid.

For, whether those ideas are themselves categories or whether they are not, it is clear that their absolute validity would imply the absolute validity of the general conception of Quantity, as given in the dialectic. Thus, even if Hegel's judgments about mathematics were all wrong, that would not prevent his dialectic from being the foundation of right judgments on the same subject to a person more skilled in mathematics.

I.—(INDEFINITE) QUANTITY.

A.—PURE QUANTITY.

This stage (Greater Logic, 212; *Encyclopædia*, 99¹) is, as the Thesis of a new triad, identical in content with the last stage of Quality, but is expressed with greater immediacy. The last stage of Quality was the Relation of Attraction and Repulsion. In this, to recapitulate the conclusion of my last paper (MIND, 1902, p. 526), "The last trace of Quality has now died out. It had almost entirely gone when the Somethings had been transformed into Ones, each of which was exactly similar to all the others. But a remnant still remained, in the shape of the Repulsion which each One exercised on all the rest. Now this Repulsion is swallowed up in a balance of Repulsion and Attraction. The Ones have now become indifferent to each other."

"And with this Quantity has been reached. Quantity involves that the units should be indifferent to one another—that they should be capable of combination or separation without any change in their nature. This is rendered possible by the indifference which has now been established. The Ones are sufficiently under the influence of Attraction to enable them to be brought together in aggregates. They are sufficiently under the influence of Repulsion to retain their separate existence in their aggregates, so that the quantity of the aggregate varies according to the number of its units.

"Quantity requires, also, that the units should be taken as equal to one another. And this condition, also, is satisfied by the Ones, which have no qualitative differentiations,

¹ My references in this paper to the Greater Logic are to the *pages* of vol. iii. of Hegel's *Works* (ed. 1838); my references to the *Encyclopædia* are to *sections*. It is only the passages in the Greater Logic which I quote as supporting the view which I take. Those to the *Encyclopædia* give the passages in which the corresponding point is treated in the later work, whether the treatment be the same or different.

and are all exactly alike. At this point, therefore, the dialectic passes over into Quantity."

Pure Quantity then, being nothing but the general notion of Quantity, is identical with the last stage of Quality, except that we are now considering only the results gained, and not the process—the equilibrium of Repulsion and Attraction—by which we gained it. The two elements which up to this point—till Quantity has been reached—have been called Attraction and Repulsion are now, in Quantity, called Continuity and Discreteness. The only difference between Attraction and Repulsion on the one hand, and Continuity and Discreteness on the other, is that which is involved in the passage into Quantity—the perception of the fact that they are inseparable, that, as was demonstrated in the triad of Repulsion and Attraction (G. L., 190-200; Enc., 98), either is impossible without the other.

But, although they are recognised as inseparable, it is still possible to lay a greater emphasis on one of them than on the other. And we begin, Hegel tells us (G. L., 213), by laying a greater emphasis on Continuity. The reason for this is, mainly, that this element is more characteristic of Quantity, though not more essential to it, than Discreteness. For as long as we had only Repulsion the process remained within Quality, but, as soon as Attraction was added, the transition to Quantity took place. Apart from this, there is always a tendency to put most emphasis on the last gained element.

B.—CONTINUOUS AND DISCRETE MAGNITUDE.

By a somewhat abrupt transition we come to this category, in which Magnitude is to be taken first as Continuous (G. L., 229). A consequence of this is that there is yet no plurality of Quantities, and that the one Quantity is indefinite. For a plurality of Quantities would require that they should be Discrete from one another. And, again, no Quantity can be definite unless by its having fixed boundaries—that is to say, by being Discrete from the Quantity beyond those boundaries. It is true that, as was said above, all Quantity has an element of Discreteness. But, so far, the only things which are Discrete from one another are the units—the Ones—which are alike Discrete from and Continuous with one another.

Now a One, taken by itself, is not a Quantity at all. For it has no plurality in it. And Ones have no possibility of varying in magnitude. All variations of magnitude are only variations in the number of the Ones. These characteristics

are essential to Quantity, and they are not possessed by isolated Ones. And the isolated Ones being, so far, the only Discrete things, we have as yet no plurality of Quantities or definite Quantity.

(It may appear incorrect to say that a One admits of no plurality. Can we not, it may be asked, conceive an isolated One as consisting of two halves, four quarters, and so on? But when we do this we have passed to a higher conception—that of Discrete Magnitude, which will be the next conception to be reached. A One which consists of parts is no longer the *mere* One, which is all that the dialectic has got at present. It is something which, while from one point of view a unit, is, from another point of view, an aggregate of two or four units. And its nature forms therefore no contradiction to what we have said of the *mere* One which is all we have before us in Continuous Magnitude.

In the same way, we may, and always do, conceive the units of which an aggregate is made up, as having magnitude, and as being capable of having different magnitudes, and of varying in magnitude. But we can only do this in so far as we conceive each of them as made up in its turn of units, and so as not being *mere* units.)

We now pass to Discrete Magnitude (G. L., 229). Continuous Magnitude was formed by passing from One to One in virtue of their Continuity with each other. But each One is as really Discrete from all the others as it is Continuous with them. And this puts it in our power to stop at any One we like, and not to go on to the next. We can thus form a finite Quantity, beginning at any point and ending at any other point. And this Quantity, being cut off by its Discreteness from the indefinite Quantity beyond it, will be a finite Quantity. In the indefinite Quantity, again, other finite Quantities can be formed, and thus we get a plurality of finite Quantities.

In the form of this stage, as presented by Hegel, there appear to be two defects. The first is that no reason is given why we should pass from Pure Quantity to the new stage. The second is that, although Continuous and Discrete Magnitude is not divided into a subordinate triad, yet there is a distinct dialectic advance within it—namely from Continuous to Discrete Magnitude.

These defects seem to me to be merely a matter of arrangement. Continuous Magnitude is not really a fresh stage, or part of a fresh stage, at all. It is nothing but Pure Quantity, since, as we have seen, it does not permit of definite Quantity, or of a plurality of Quantities.

On the other hand, Discrete Magnitude is not merely correlative with Continuous Magnitude. It is distinctly a more advanced conception. It gives us the distinctness and plurality which were lacking before, and it gives them to us by differentiating the relation between Ones—by joining some of them to others, and disjoining them from others again, instead of making the relation uniform.

It is then, in reality, to Discrete Magnitude that the advance from Pure Quantity is made. This is evident in Hegel's text, but is misrepresented by his headings. In order that these should correspond with his argument, he should have dealt with Continuous Magnitude under the head of Pure Quantity, and should have made his second stage simply Discrete Magnitude, instead of Continuous and Discrete.

It should be remarked that, although the transition to Discrete Magnitude lies in the possibility of breaking off the Quantity at any One, this does not mean that it is merely a possible transition. Continuous Magnitude is that which cannot be broken off at any point. Discrete Magnitude is that which can be broken off at any point. When we are forced to admit the possibility of breaking Magnitude off at any point, this is a necessary transition to the category of Discrete Magnitude.

We can break it off, then, at any point we like. But no reason has been given why we should break it off at one point rather than another. Nor can any such reason be given until we have passed out of the sphere of Quantity into Measure. To this point we shall recur later on.

C.—LIMITATION OF QUANTITY.

(G. L., 231.) Hegel says that Discrete Magnitude as such is not limited. It is only limited as separated from the Continuous. By this, I conceive, he means that, if the Discrete Magnitude were taken in isolation, its final One would not be a Limit, because it would not divide the Discrete Magnitude from anything else. It is only in so far as it is regarded as in connexion with the indefinite Continuous Magnitude from which it has been carved out, that its final term is to be considered a Limit. (On Hegel's use of Limit, cp. MIND, 1902, p. 513.)

The Discrete Magnitude thus shares its Limit with the Continuous Magnitude outside it. It is thus in a definite relation to that which bounds it, and has itself a definite amount. To definite Quantities Hegel gives the name of

Quanta, and so we pass to the second main division of our subject,

II.—QUANTUM.

A.—NUMBER.

(G. L., 232; Enc., 101.) In reaching the conception of a limited and definite Quantity we have reached for the first time the possibility of Number. While Quantity is merely Continuous it cannot be numbered. For then there is no intermediate term between the separate Ones and the whole unlimited indeterminate Quantity. The separate Ones in their separateness cannot have any Number, since each of them is only One. And, on the other hand, Indefinite Quantity can have no Number, since it has no Limit, and without a Limit it cannot have one Number rather than another, that is, it can have no Number at all. But now that we have a definite Quantum, it consists of those Ones which are included between certain limits, and can therefore be numbered.

"Quantity is Quantum," says Hegel, "or has a Limit, both as Continuous and as Discrete Magnitude. The difference of these species has here, to begin with, no meaning" (G. L., 232). This must not, of course, be taken as an assertion that Continuity and Discreteness have no longer meaning as different *moments* in any Quantity. It is only the distinction between Continuous and Discrete *Magnitudes* which has no longer any meaning. And we have seen that the two have been united in Limitation of Quantity. For there it became clear that Discrete Magnitudes, while, as their name shows, Discrete from each other, were also Continuous with each other. In fact, we may say that finite Quantities now stand to Quantity as a whole in the same relation in which Ones stand to finite Quantities—that is to say that they constitute it by virtue of being both Discrete from and Continuous with each other.

Quantity is now indifferent to its Limit, but not indifferent to having a Limit, for to have a Limit is identical with being a Quantum (G. L., 232). The distinction seems to be that it is always essential to a Quantity to have a Limit, but never essential to it to have a particular Limit. Of course, if it had a different Limit, it would be a different Quantity. But then there never is any reason why a Quantity should not be a different Quantity, unless non-quantitative considerations are introduced, which we have no right to do here.

This point will recur again when we come to the Quantitative Infinite Progress.

Hegel further says that the Ones which make up any Quantum are indifferent to the Limit, but that the Limit is not indifferent to the Ones (G. L., 234). As the Limit is that which determines the Quantum to be what it is, it follows that the Ones in a Quantum are indifferent to the Quantum, while the Quantum is not indifferent to them.

This superiority of the units to the aggregate is essential to Quantity, and is implied in all quantitative statements. When we say, for example, $7 = 5 + 2$, we assume that each of the units dealt with will remain unchanged, whether it is combined with more or fewer others. If not, then the proposition would not be true. But the aggregates do not remain the same, regardless of the units. If for example we take one unit away from 7, it is no longer equal to $5 + 2$.

B.—EXTENSIVE AND INTENSIVE QUANTUM.

(a) *Their Difference.*

Extensive and Intensive Quanta differ from one another in a manner analogous to the difference between Continuous and Discrete Quantity. The distinction between the new pair of terms and the old pair is that Extensive and Intensive refer to Quantitative *Limits* only, and, as the Quantum is identical with its Limit, they apply to Quanta, while, since no Quantities except Quanta have Limits, they apply to no Quantities except Quanta. Continuous and Discrete, on the other hand, are applicable to all Quantities (G. L., 252).

We first have Extensive Quantum. This conception is identical with that of Number, except that its determination is now explicitly posited as a plurality (*Vielheit*) (G. L., 253). I do not see why plurality is more explicitly posited in the conception of Extensive Quantum than in that of Number, nor does Hegel give any reason why it should be so. It can easily be understood, however, that the idea of Extensive Quantum has the same content with the idea of Number. The Extensive Quantum is looked on as primarily a plurality. It is not exclusively a plurality, for, since it is a Quantum, it must be definite, and, being definite, must be Discrete. It is therefore a unity as well as a plurality, but its distinctive mark is plurality. Now this is also the case with Number. A Number is a unity, or it could not be definite. But it is conceived as more essentially a plurality. This is clear from the atomism of Number mentioned above, by which the Ones are indifferent to the Quantum, but the Quantum is not

indifferent to them, which gives the plurality of the Ones a logical priority over the unity of Quantum.

But the plurality contained in each Number is not a plurality of unlike things, but of things with a similar nature, and Continuous with one other. They can therefore be taken as a unity, and, when this is done, we get the conception of Intensive Quantum (G. L., 253; Enc., 103).

The difference between Intensive and Extensive Quantum is one of comparative emphasis. Extensive Quantum has a certain unity, but it is subordinate to its plurality. Intensive Quantum has a certain plurality, but it is subordinate to its unity. The limit of an Intensive Quantum is called its Degree (G. L., 254; Enc., 103). The Degree of such a Quantum is a Majority rather than a Plurality (*Mehrheit* rather than *Mehreres*). And while it may be spoken of as a Number (*Zahl*), it must not be regarded as a Sum (*Anzahl*) (G. L., 254).

(b) *Identity of Extensive and Intensive Magnitude.*

The treatment of this point is rather obscure. Hegel says "Extensive and Intensive Magnitudes are thus one and the same determination of Quantum; they are only separated as follows, that one has its Sum inside itself, the other has its Sum outside itself. Extensive Magnitude passes over into Intensive Magnitude, since its plurality falls inherently into a unity, outside which plurality is found. But on the other hand this unity only finds its determination in a Sum, and in a Sum which is regarded as its own; as something which is indifferent to Intensities otherwise determined, it has the externality of the Sum in itself; and thus Intensive Magnitude is as essentially Extensive Magnitude" (G. L., 256).

Does this mean that the two terms are strictly correlative—that they stand side by side in the dialectic process, and that the transition from Intensive to Extensive is of precisely similar nature as the transition from Extensive to Intensive? Or does it mean that Intensive Quantum stands higher on the scale than Extensive, and that the transition from Extensive to Intensive is the transition of the dialectic process, while the transition from Intensive to Extensive merely means that what is seen under a higher category can, if we choose, also be regarded under a lower category?

The words quoted above suggest the first of these alternatives. And this is supported by the passage which immediately follows them (G. L., 257). In this we are told that with this identity we gain a Qualitative Something, since the identity is a unity which is formed by the negation

of its differences. This on the whole suggests that the two terms are to be taken as on an absolute equality.

Nevertheless, it seems to me that the weight of the evidence is on the whole in favour of the view which finds Intensive Magnitude a more advanced stage of the dialectic process than Extensive Magnitude. To this conclusion I am led by three reasons.

In the first place, we cannot safely lay much weight on Hegel's expressions about the Qualitative Something. For the introduction of a Qualitative element here seems merely casual. It is dropped as soon as it has been stated. We hear nothing more of it while we remain in the division of Quantum. The next mention of a Qualitative element comes in the division which succeeds Quantum—namely Quantitative Relation. And when it comes in there, it is introduced quite independently, with no reference to the passage on page 257, and in quite a different way. That passage cannot therefore be considered one of much significance.

In the second place, the transition to the next category (The Alteration of Quantum) does not start from the identity of Extensive and Intensive Magnitudes, but from the conception of Intensive Magnitude taken by itself. This will, I think, be evident when we come to consider the transition, and it would follow that Intensive Magnitude must be above Extensive in the scale of categories, since the movement to further categories passes from the Intensive, taking no special account of the Extensive, which must therefore be considered as absorbed in the Intensive.

In the third place, this view is supported by several passages of Hegel. He says (G. L., 279-280) that the notion of Quantum reaches its reality as Intensive Magnitude, and is now posited in its determinate Being as it is in its Notion. This is supported by the Encyclopædia, where he says (Enc., 104) that in Degree the notion of Quantum is explicitly put. There is also not the slightest doubt that, in the Encyclopædia, Intensive Quantum is higher than Extensive Quantum, for, under the name of Degree, it forms a quite separate division, which is the last and highest division of the whole of Quantity.

On the whole, therefore, although the evidence is certainly conflicting, I think it better to hold that Hegel regards Intensive Quantum as higher than Extensive Quantum. We can easily see why it should be regarded as higher. It emphasises the unity of the Quantum rather than its plurality. In other words, it emphasises the Limit. Now this emphasis of the unity and the Limit carries us farther

away from the indefinite Quantity with which Quantity as a whole began. In that indefinite Quantity there were no Quantities, each with a Limit and unity of its own. Thus the more emphasis is laid on unity, the farther do we get from the previous stage, and this is an advance. And, again, the more the unity of each Quantum is recognised, the more pressing becomes the question why it should be that Quantum, and not some other—the question which will carry us over into the last subdivision of Quantum, which is Quantitative Infinity.

Once again, then, Hegel's titles do injustice to the course of his argument. The real advance is not from the difference between Extensive Quantum and Intensive Quantum to the identity between them. It is rather from Extensive Quantum to Intensive Quantum. And thus it would seem that the two first subdivisions of Quantum should have been (a) Extensive Quantum, (b) Intensive Quantum.

We have come thus, for the second time in this paper, to the conclusion that Hegel's titles do not do justice to the merits of his argument. In each case the defect arose from the titles taking as correlative two conceptions, of which his argument shows one to be superior to the other. In the first case it was the Continuous and Discrete; in the second case it was the Extensive and Intensive. It may perhaps be the case that the confusion arose from following in the titles the usage of mathematics, for which each of these pairs is a pair of two correlatives which are on a strict equality with one another. Should this be the true explanation, it would add another to the cases in which the consideration of the finite sciences, so far from rendering assistance to the dialectic, has distorted it, and injured its cogency. Such, as I have endeavoured to show in former papers, was the case with the categories of Chemism and Life.

We now come to the transition to the next category. Of this Hegel says: "The Quantum is the determination posited as transcended, the indifferent limit, the determination which is equally the negation of itself. This discrepancy is developed in Extensive Magnitude, but it is Intensive Magnitude, which is the determinate being of this externality, which constitutes the intrinsic nature of the Quantum. It is posited as its own contradiction, as being the simple determination relating itself to itself, which is the negation of itself, as not having its determination in itself, but in another Quantum.

"A Quantum is therefore posited as in absolute Continuity, in respect of its Quality with what is external to it, with its

Other. It is therefore not only *possible* that it should go beyond any determination of Magnitude, it is not only *possible* that it should be altered, but it is posited as *necessarily* altering itself. The determination of Magnitude continues itself in its Otherbeing in such a way that it has its being only in its Continuity with an Other; it is a limit which *is* not, but *becomes*" (G. L., 261; cp. also Enc., 104).

In other words, a Quantum can only be defined in relation to another Quantum. No reason can ever be found in any Quantum (if non-quantitative considerations are eliminated) why it should have its actual Magnitude rather than some other. All Magnitudes are fixed by non-quantitative considerations. There is an *a priori* reason why a triangle has three sides, rather than two or four. There is an empirical reason why there are seven apples on this dish, rather than six or eight. But there can never be any reason why the number seven, taken simply as a number, should not be in any particular case replaced by six or eight. It has its determination in another Quantity—it stops where another begins. But it is after all continuous with this other Quantity—the Ones are just the same on each side of the Limit, and there can be no reason why the Limit should not be put elsewhere, and so add to the Quantum or diminish it. And so we come to

(c) *The Alteration of Quantum.*

Why, it may be asked, did not this conception of the necessary variation of Quantity come before? Surely it is as true of an Extensive Quantum as of an Intensive Quantum that no reason can be found in the nature of the Quantum itself why it should not be larger or smaller.

I think it is true that, if we had stopped at Extensive Quantum, without going on to Intensive, this conception of Alteration would have necessarily followed from Extensive Quantum. But the more immediately obvious transition—and therefore the one to take first—was the transition to Intensive Quantum. And, if Intensive Quantum was to come in at all, the transition to Alteration of Quantum comes better after it, for the necessity of that transition then becomes far more obvious. As was said in the passage quoted above, it was developed in Extensive Magnitude, but finds its determinate being in Intensive Magnitude.

When we regard a Quantum as Extensive, we regard the plurality of Ones as the element which is logically prior, and the Quantum as a whole is regarded as dependent on

the Ones. Now so long as we refer the Quantum to the Ones, there is a reason for the Quantum being the size it is, and no other—namely that it includes those Ones, and no others. If we go farther, and ask why those Ones and no others should be included, no answer could be given, and the conception of Alteration would arise, but so long as we regard the Ones as ultimate in reference to the Quantum, the necessity of Alteration remains in the background.

But with Intensive Quantum it comes at once to the front. For there the unity of the Quantum is the prominent element. It is conceived as logically prior to the Ones. And therefore our question—why is it this Quantum, and not a larger or smaller one—cannot be referred back to the Ones which it contains. And therefore the necessity of Alteration, which is due to the impossibility of answering this question, follows more obviously and naturally from Intensive Quantum.

This is what Hegel means when he says (G. L., 253) that determination of a "Quantum through Number (which is a category previous to Intensive Quantum) does not need another Magnitude, because in Number Quantum has its externality, and its relation to another, inside itself. (If this passage seems to deny *all* tendency to Alteration or the fact of an Extensive Quantum, we must remember the explicit assertion on page 261 that the difference in this respect between Extensive and Intensive is merely a matter of degree.) And again (G. L., 254) "Degree, therefore, which is simple and in itself, and so has its external Otherbeing no longer in itself, has that Otherbeing outside itself, and relates itself to it as to its determination".

We have now come to the end of Extensive and Intensive Quantum, and pass on to the third subdivision of Quantum, which is called

C.—THE QUANTITATIVE INFINITY.

(a) *Its Notion.*

The first subdivision of Quantitative Infinity is, as usual, the restatement of the last subdivision of the preceding triad. The first movement of the Quantum when it passes its Limit is into a Quantity which is simply defined as not being that Quantum. So far, then, it is only Quantity, and no longer Quantum. And as Quantity is only bounded when it is Quantum, this Quantity has no boundaries at all. Thus it is infinite (G. L., 263).

Hegel now proceeds to remark on the difference between the Qualitative Infinity, which was one of the triads in

Being Determinate, and the Quantitative Infinity, with which we are now dealing (G. L., 264). That which is Qualitatively determined is not *posed* as having the other in itself. Magnitudes, on the other hand, are posited as being essentially Alterable, as being, in Hegel's somewhat peculiar language, "unequal to themselves and indifferent to themselves".

The difference is one which always arises between lower and higher categories in Hegel's philosophy. The method of the dialectic changes gradually as the dialectic process advances (cp. Enc., 240; 111, lecture note; 161, lecture note). It becomes more of a spontaneous advance from category to category, and less of a breaking down, by negative methods, of the resistance of categories which oppose any movement beyond them. It is thus to be expected, since Quantity comes later than Quality in the process, that the finite in Quantity should lead on to the infinite more expressly and directly than the finite in Quality does.

From this category the transition to the Infinite Progress takes place in a manner analogous to that which we noticed when we dealt with the Qualitative Infinite (MIND, 1902, p. 517). The Quantum is after all continuous with the indefinite Quantity into which it has passed over. If it were not, it would not have passed over into it. The passage has only taken place because both terms are Quantities, only separated by a Limit to which it is the nature of Quantity to be indifferent. But the Quantity on the other side of the Limit will also be composed of Ones, and thus the argument is again applicable which originally transformed Quantity into Quantum. The Other Side (*Jenseits*) of the original Quantum is now itself a Quantum. And therefore it, like the original Quantum, is essentially subject to alteration, and will pass the Limit, only thereby to reach a third Quantum, which will be surpassed in its turn, and so on (G. L., 265). Thus we come to

(b) The Quantitative Infinite Progress.

At this point Hegel inserts an interesting note on the supposed sublimity of the sort of Infinite which is revealed in such a progress as this. Such an Infinite, he says, can produce nothing but weariness (G. L., 268; Enc., 104, lecture note). This is extremely characteristic of Hegel. When he says that the true Infinite is not the unbounded, but the self-determined, he does not merely change the meaning of a word, but claims for the self-determined all

the dignity which is more commonly attributed to the unbounded. It is, perhaps, to his deep conviction that true greatness lies in self-limitation, and not in the absence of limitation, that we are to ascribe much of the special reverence which he shows for the ideas of the Greeks, as well as his contempt for the Romanticism of his own age and country.

At the same time we must not forget that Hegel never says that the False Infinite of an Infinite Series is necessarily contradictory, though he does say it is worthless and tedious. (Cp. MIND, 1902, p. 518: "The contradiction only arises when, on the one hand, it is asserted that something is explicable or determinable, and when, on the other hand, the attempt to explain or determine it leads to an infinite series. For we cannot tell that the series will be infinite, unless we know that *no* term in the series can give the required explanation or determination. And, if no term can give it, and the explanation or determination can only be looked for in the series, then it will not be found at all, which contradicts the original assertion that it can be found.

"In opposition to this, it may perhaps be said that, though no term can give the required explanation or determination, the whole series may. But if the series is a mere aggregate of its terms, it can give nothing that is not given by one of them. And if the series is something more than the mere aggregate of its terms, then the solution is found in its unity, and not in the infinite series at all.")

Now it is an attempt to determine something which leads, in the case before us, to the Infinite Series. The dialectic process had reached the idea of a Quantum, which, among other characteristics, had to be definite. But it could only be definite by having a Limit, and keeping within it. We have seen, however, that any Quantum necessarily passes its Limit, and overflows into a fresh Quantum. But it is of the essence of Quantum to be determined, and the dialectic process will not permit us to reject the idea of Quantum altogether. In this case, therefore, a contradiction arises.

How is the contradiction to be avoided? In a very similar way to that in which the same difficulty was met in the case of Qualitative Infinity. That which is outside any Quantum is another Quantum. If we try to find the determination of any Quantum in itself exclusively, then we find that its Limit continually alters, and that the task is endless. But, if we fully accept the relation of each Quantum to the other which is outside it, the case is changed. No Quantum can determine itself as against another Quantum. But two

Quanta can reciprocally determine one another. There is no reason why 7 should not become 6, or why 17 should not become 16, if we take 7 and 17 as two isolated facts, each of which must be determined by itself, or not at all. But if we take these Quanta as related to one another, then there is a reason why 7 should not become 6—for it would then bear a different relation to 17, and there is a reason why 17 should not become 16—for it would then bear a different relation to 7. Thus the Quanta have now some real self-determination, though it is slight; *a* cannot become greater or less, because it would thereby change its relation to *b*. And its relation to *b* is what it is, not only because *b* is *b*, but because *a* is *a*. With this partial self-determination we reach (G. L., 279; Enc., 105, lecture note)

(c) *The Infinity of Quantum,*

by which is meant the true Infinity of self-determination, as opposed to the False Infinity of an unending progress.

It will be noticed that there is a difference between the Quantitative Infinite Progress and the earlier Qualitative Infinite Progress. In Quality (cp. MIND, 1902, p. 517) the Something finds its nature only in another Something, which in turn finds its nature in a third, and so on. The Somethings themselves do not change, but fresh ones are continually reached, in the vain search for a final determination. In Quantity, however, the Infinite Progress is not one of an Infinity of Quanta, but of a single Quantum, which endlessly increases in size, as it successively overleaps every Limit.

This difference is inevitable. In Quality there can be no change of anything. The nature of reality is not yet sufficiently complex to allow anything to become different in one respect while remaining the same in others. If a thing is not completely the same it has utterly vanished (cp. MIND, 1902, p. 508). It is impossible, therefore, for a Something to change, and the Infinite Progress can only proceed by adding fresh Somethings.

In Quantity the position is altered. Change is now possible, and so the original Quantum can change. On the other hand, the indifference of the Quantum to its Limit (the first correction of which only arises as we pass out of the Quantitative Infinite Progress) renders it impossible to pass from one Quantum to another.

This difference of the Antitheses in the two triads accounts for the difference in the Syntheses, though the general thought in both Syntheses is the same.

With this stage of the dialectic the idea of Quality returns (G. L., 281; Enc., 105). This is most clearly stated in the Encyclopædia: "That the Quantum in its independent character is external to itself is what constitutes its quality. In that externality it is itself and referred connectively to itself. There is a union in it of externality, *i.e.*, the quantitative, and of independency (Being-for-self)—the qualitative". The essential characteristic of Quantity was that it could alter and yet remain the same. Now this characteristic begins to disappear. The Quantum can no longer alter without the least effect on anything but its own Magnitude. For it is now in relation to some other Quantum, and it cannot alter unless either that other Quantum, or the relation, alters simultaneously. This is the first step (though as yet but a very small one) towards bringing back, on a higher level, the fixity of Quality. With it we pass out of Quantum, to the third and last division of our subject, after some mathematical digressions occupying nearly 100 pages,

III.—THE QUANTITATIVE RATIO.

The Ratio between two Quanta is, as Hegel points out, itself a Quantum (G. L., 380). And he now transfers his attention from the related Quanta to the Quantum which forms their relation, and is known as the Exponent. If he can transcend the essential defect of Quantity in this case, he will have found a universal solution, since it is obvious that any Quantum can be expressed as the Ratio between two other Quanta.

The first and simplest form of Ratio is called

A.—THE DIRECT RATIO

(G. L., 381), which is a restatement of the last subdivision of Quantitative Infinity. The related Quanta are here taken as logically prior, and the Quantum which is their Ratio as logically subsequent. Thus we get, for example, that the Ratio of 7 to 35 is 5.

Hegel points out three characteristics of this Ratio. The first is that the Quantum which is the Ratio is no more determined by the two Quanta of which it is the Ratio than it is by an infinite number of pairs of other Quanta. For example, 5 is equally the Ratio of 6 and 30, of 8 and 40, and so on (G. L., 382).

The second characteristic follows from the first. The related Quanta cease, so far as they are taken simply in

this relation, to be perfect Quanta. For it does not matter how much they alter absolutely, provided they do not alter relatively. So long as one remains five times the other, they may both increase or decrease indefinitely. And the alteration of each is no longer perfectly free, but is conditional on an alteration of the other. If 7 increases to 9, then 35 must increase to 45 (G. L., 382, 383).

The third characteristic is that the whole meaning of the pair of related Quanta, taken as related, is summed up in the Exponent. And therefore Hegel finds it a defect in this category that the Exponent is not sufficiently marked out from the other Quanta. It cannot be the largest of the three Quanta concerned, but it can be either of the others. We have said that 7 and 35 stand to each other in a Ratio expressed by 5. But we might just as well have said that 5 and 35 stand to each other in a Ratio expressed by 7 (G. L., 383). Since—this appears to be Hegel's argument—the Exponent is specifically different from the related Quanta, it must be clearly distinguishable from them. But in Direct Ratio this is not the case. We must therefore seek another Ratio, where the Exponent is marked out by the nature of the relation. Now, if you have three integral numbers (and Hegel appears to assume that all his Ratios will be between Quanta expressed by integral numbers), there is a relation between them which has the required definiteness. If one of them is the product of the other two, then it is the largest of the three that will be the product. So we come to

B.—THE INVERSE RATIO

(G. L., 384), where the Exponent is the product of the two related Quanta. It appears to be called Inverse because the increase of one of the related Quanta involves the diminution of the other.

The transition to the next category is extremely obscure. So far as I can understand it, it is as follows (G. L., 389). Either of the two related Quanta can increase, so long as the other diminishes, the only Limit of this process being that neither of the related Quanta can become larger than the Exponent. Thus either of the related Quanta is implicitly (*an sich*) the Exponent. Hegel calls this "the negation of the externality of the Exponent". This means, if I am correct, that there are no longer necessarily *three* Quanta, but only two, namely the Exponent, connected with one other Quantum, no longer by a third Quantum, but by some non-quantitative relation. And thus, says Hegel, without any further explanation, we reach

C.—THE RATIO OF POWERS.

By this he appears to mean only the special relation which exists between two numbers, one of which is the square of the others (G. L., 390). It is the square, as the result of the process, which is treated as the Exponent.

The transition appears very questionable. It may be admitted that the indefinite approximation of one of the related Quanta to the Exponent brings a Qualitative element into greater prominence, and that the Ratio of Powers has also a relatively prominent Qualitative element. But in other respects they are quite different conceptions. And Hegel gives us no reason for passing at this point from one partially-qualitative relation to another and distinct partially-qualitative relation. He is satisfied with showing that they are both partially-qualitative, which is clearly not sufficient.

It is difficult to see, too, why Hegel thought himself justified in considering only those cases where one Quantum was the square of the other, and in excluding cubes and other powers. If, however, he *had* considered these other powers, it would have become evident that the relation between the two Quanta was not yet one which could dispense with a third Quantum. For the question of the power to which one was to be raised to equal the other could only be answered by naming a third Quantum.

Hegel makes the transition to the next category as follows: "Quantity as such appears as opposed to Quality; but Quantity is itself *a* Quality, a determination in general which relates itself to itself, separated from the determination which is other than it, from Quality as such. Yet it is not only *a* Quality, but the truth of Quality itself is Quantity; Quality has shown itself as going over into Quantity; Quantity, on the other hand, is in its truth that externality which is turned back on itself, which is not indifferent. So it is Quality itself, in such a way that outside this determination Quality as such is no longer anything" (G. L., 392). He goes on to say that this union of Quantity and Quality gives us Measure, which carries us beyond our present subject into the third and last subdivision of the Doctrine of Being.

We have now reached the end of Hegel's treatment of Quantitative Ratio. Can it be regarded as valid? I do not think that it can. Something might perhaps be said against the validity of the transition from Direct to Inverse Ratio. Certainly a good deal might be said, as I suggested above, against the transition from Inverse Ratio to the Ratio of Powers. But it is not necessary to go into these difficulties,

for there is a much more general objection. The whole triad of Quantitative Ratio is a blind alley. It does not lead, as it professes to lead, to the category of Measure, and the chain of the dialectic cannot be continued through it.

The passage I have quoted above contains the transition from Quantity to Measure. We therefore have before us the manner in which the inadequacies of Quantity are to be transcended, and in which Quality is to be recovered and synthesised with Quantity in Measure. It seems to me that neither of these objects has been really attained.

As to the first. The special characteristic of Quantity was its indifference. It was originally stated to be that which could alter, and yet remain the same. When we reached Quantitative Infinity, we found that it not only could alter, but must alter, and it was to remedy the contradictions thus caused that we were forced to have recourse to Quantitative Ratio.

Does Quantitative Ratio remove this indifference, even when taken in its highest form, the Ratio of Powers? Let us pass over the difficulty that the power to which a number is to be raised can only be expressed as an immediate Quantum, which might be any other. Let us confine ourselves, as Hegel does, to squares, and ignore the quantitative nature of the index. Has this removed the indifference? If we take 49 as a simple Quantum, it is under the necessity of changing continually. If we take it as the square of 7, has the necessity disappeared?

Surely it has not. It is true that 49 cannot now change unless the 7 changes with it. But 7 is also a Quantum, and so there can be no reason why it should not change, nor, therefore, why 49 should not change. Again, the first numbers it can change to are no longer 48 and 50, but 36 and 64. But its number of changes is still unlimited, since any number may have a square. There is no end to the various numbers which can be substituted for 7, and, therefore, no end to the various numbers which can be substituted for 49. The movement of the 49 has now a few restrictions put upon it, but not sufficient to save it from the possibility and necessity of continuing in an infinite series. And therefore Quantitative Ratio has not removed the contradictions of Quantitative Infinity, nor has it enabled us to transcend the characteristic nature of Quantity. It is true that 7 and 49 are linked Quanta, but they are still Quanta.

With this is very closely connected the second defect of the triad. It professes to lead us to Measure, and it must therefore bring back Quality. In the passage quoted above

(G. L., 392) Hegel says that it has done this. We may admit the first part of what he says. Since the conception of related Quanta was first introduced in the category of Infinity of Quantum, there has been a slight Qualitative element in the nature of Quantity. For the movements of each separate Quantum are no longer completely arbitrary and unconditioned, and every restriction on the movement means some departure from the typical idea of Quantity. But this is not enough. In the Ratio of Powers we have the transition to Measure. In it, therefore, Quality ought to be completely restored, since Measure is the Synthesis of Quality and Quantity. It ought to be present as something which is indeed united with Quantity in the Synthesis, but which is no more dependent on, or a variety of Quantity, than Quantity is a variety of it. This has not happened. We have got a Quantity, which is more like a Quality than before, but which is still essentially a Quantity, and not a Quality. The test of this is the indifference, and the Infinite Progress which the indifference gives rise to. Till we have got rid of this, we have not transcended Quantity. For the indifference is, as we have seen, the special characteristic of Quantity, and it is also the source of the contradictions inherent in Quantity, for the removal of which the transition to Measure becomes necessary. But, as I pointed out above, the Ratio of Powers does not get rid of the indifference or of the Infinite Progress. For it can only account for the size of one Quantity by its relation to another. And if we ask why the other is no larger or smaller, we can only be referred to a relation which it had with some other Quantum, and so on continually. Our conclusion must be that the Ratio of Powers has not transcended Quantity, and is not, therefore, a valid transition to Measure.

What then is to be done? We saw reason to think that the transition from Quantum to Quantitative Ratio is valid, and I believe that it is possible to recast the triad of Quantitative Ratio in such a way as to make a valid transition to Measure. The Thesis of my proposed triad would be the restatement of the general idea of Quantitative Ratio, as it had been arrived at in the previous category of Infinity of Quantum. It might be called *Quantitative Ratio as such*, or again *Quantitative Ratio in general (überhaupt)*, either of which would be in accordance with Hegel's terminology.

The inadequacy of the Thesis would lie in the fact, which we have already mentioned, that, if one Quantum is determined by its Ratio to another, the question inevitably arises how that other is to be determined. We are thus led into an

infinite series. This conception forms the Antithesis of our triad, and might be called *The Infinite Series of Ratios*.

It will be noticed that this Infinite Series resembles the Infinite Progress found in Quality more than it resembles the Infinite Progress in Quantum. For the Ratios do not continually alter, as the Quanta did. The Infinity comes in through the necessity of going on to fresh Ratios to determine those already existing. This approximation to the Qualitative type of infinity is very natural, since, with Ratio, Quantity has begun to approximate to Quality.

Here, as in the two previous cases, the Infinite Series involves a contradiction. The original Quantum is determined. But it can only be determined by its relation to the next, and so cannot be determined unless that one is determined also. But this depends in like manner on the next again, and so on. Therefore the Original Quanta cannot be determined until an infinite series is completed. That is, it can never be determined, which contradicts the previous assertion that it is determined.

We must pass on, then, to a fresh category, which will remove this contradiction, and will form the Synthesis of Quantitative Ratio. We have seen that Quantity, however developed, can never, while it remains only Quantity, get rid of the inadequacy which has now shown itself once more in the Infinite Series of Ratios. Now the ground of this inadequacy was the necessary indifference of all Quanta. And this indifference, we saw, proceeded from the fact that all Ones were exactly alike, so that there could be no reason assigned why a Quantum should stop at any particular Limit, rather than any other.

The only way of escaping from our difficulty, therefore, will be to reject the exact similarity of the Ones. At the same time, we must not reject all that has been gained since Being Determinate was left behind. For, if we did replace ourselves in the position of Being Determinate, then all the categories would again be developed from it till Quantitative Ratio was reached, when we should have again to return to Being Determinate, and so on in an endless round.

It is necessary, then, to keep Quantity in some form, and yet to restore Qualitative differences. Now this can be done, if at certain points in a series of units there is a Qualitative change, so that the Ones on one side of each of these points are Qualitatively different from those on the other side of that point. In this way we shall still have Quanta, because we shall have, within certain limits, aggregates of Ones which are of precisely similar nature. And since, at

these limits, there is a Qualitative change, there is now a reason why the Quantum should remain within its Limit, and not increase beyond it. For it is a Quantum of Bs, and, if it went beyond the Limit, it would find no more Bs but only Cs.

We have thus reached a solution of the inadequacy of Quantitative Ratio, and also of the inadequacy of Quantity generally. The conception which has achieved this is identical with the category to which Hegel gives the name of Measure. The third member, therefore, of the triad of Quantitative Ratio may, in accordance with Hegel's terminology, be called *The Transition to Measure*. And with this we pass from Quantity to Measure—the third and last subdivision of the Doctrine of Being.

The course of the argument in the Encyclopædia is practically the same as in the Greater Logic, except in the relative importance given to different categories. In the Greater Logic, as we have seen, Extensive and Intensive Magnitudes, and the Infinite Progress, all fall within the second subdivision, while the third subdivision is completely taken up by Ratio. In the Encyclopedia, the second subdivision (named, as in the Greater Logic, Quantum) deals with Extensive Magnitude only. The third subdivision is called Degree, and contains Intensive Magnitude, the Infinite Progress, and Ratio. This arrangement shows more clearly the advance made in passing from Extensive to Intensive Magnitude, but otherwise it seems inferior to the order of the Greater Logic. For Intensive Magnitude seems more closely connected with Extensive Magnitude than it is with Ratio. And, again, the Infinite Progress makes manifest the characteristic contradiction inherent in all Quantity. It would seem, therefore, more appropriately placed in the second subdivision, which is the Antithesis of the triad of Quantity, than in the third, which is the Synthesis.

III.—MEINONG'S THEORY OF COMPLEXES AND ASSUMPTIONS (I).¹

BY B. RUSSELL.

THAT every presentation and every belief must have an object other than itself and, except in certain cases where mental existents happen to be concerned, extra-mental; that what is commonly called perception has as its object an existential proposition, into which enters as a constituent that whose existence is concerned, and not the idea of this existent; that truth and falsehood apply not to beliefs, but to their objects; and that the object of a thought, even when this object does not exist, has a Being which is in no way dependent upon its being an object of thought: all these are theses which, though generally rejected, can nevertheless be supported by arguments which deserve at least a refutation.² Except Frege, I know of no writer on the theory of knowledge who comes as near to this position as Meinong. In what follows, I shall have the double purpose of expounding his opinions and of advocating my own; the points of agreement are so numerous and important that the two aims can be easily combined.

The theory of knowledge is often regarded as identical with logic. This view results from confounding psychical states with their objects; for, when it is admitted that the proposition known is not identical with the knowledge of it, it becomes plain that the question as to the nature of propositions is distinct from all questions as to knowledge. And

¹ The works concerned are: "Ueber Gegenstände höherer Ordnung und deren Verhältniss zur inneren Wahrnehmung," *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, vol. xxi., pp. 182-272 (1899); *Ueber Annahmen*, Leipzig, 1902, pp. xv, 298. There is an important article in the above periodical, "Abstrahiren und Vergleichen," vol. xxiv., pp. 34-82 (1900), which, since its theme is not very closely connected with that of the above two works, I shall not deal with, although its contents appear to me almost wholly true, and deserving of careful attention.

² I have been led to accept these theses by Mr. G. E. Moore, to whom, throughout the following pages, I am deeply indebted.

the refusal to recognise this distinction appears to have, apart from metaphysical consequences, two bad effects: it introduces irrelevant psychological considerations into logic, and at the same time excludes relevant psychological considerations from the theory of knowledge. It does the former, because knowledge cannot be other than psychical; and it does the latter because the distinction between logic and psychology is strongly felt, and is therefore constantly stated as a distinction between theory of knowledge and psychology. The theory of knowledge is in fact distinct from psychology, but is more complex: for it involves not only what psychology has to say about belief, but also the distinction of truth and falsehood, since knowledge is only belief in what is true. Thus the subject may be approached either through psychology or through logic, both of which are simpler than it is. Meinong has approached it through psychology, but with great logical acumen; it may be interesting, therefore, to confront his views with views which are suggested by the approach through logic.

Before entering upon details, I wish to emphasise the admirable method of Meinong's researches, which, in a brief epitome, it is quite impossible to preserve. Although empiricism as a philosophy does not appear to be tenable, there is an empirical manner of investigating, which should be applied in every subject-matter. This is possessed in a very perfect form by the works we are considering. A frank recognition of the data, as inspection reveals them, precedes all theorising; when a theory is propounded, the greatest skill is shown in the selection of facts favourable or unfavourable, and in eliciting all relevant consequences of the facts adduced. There is thus a rare combination of acute inference with capacity for observation. The method of philosophy is not fundamentally unlike that of other sciences: the differences seem to be only in degree. The data are fewer, but are harder to apprehend; and the inferences required are probably more difficult than in any other subject except mathematics. But the important point is that, in philosophy as elsewhere, there are self-evident truths from which we must start, and that these are discoverable by the process of inspection or observation, although the material to be observed is not, for the most part, composed of existent things. Whatever may ultimately prove to be the value of Meinong's particular contentions, the value of his method is undoubtedly very great; and on this account, if on no other, he deserves careful study.

The following is a brief outline of Meinong's main theses.

In all presentation and judgment, it is essential to distinguish the content from the object. The object, when it is what he calls an "object of higher order," is complex. The article on this subject investigates the nature of complexity in objects, and contends that complex objects are perceptible. The book on assumptions (*Annahmen*), which is at first sight on a different theme, is really closely connected with this article. It points out that judgment contains two elements, (1) conviction, (2) affirmation or denial, and that, in a large class of common facts, which are called *assumptions*, the second occurs without the first.¹ Both judgments and assumptions have reference to what Meinong calls Objectives, which are the propositions concerned: a judgment and an assumption differ, not in respect of the Objective, but in respect of the conviction which is present in the one but not in the other. It now appears that these Objectives always enter into the composition of complexes, even if they are not always identical with them.² But it is contended that complexes cannot be objects of presentation, since they require always an assumption, which is something radically different from presentation. Thus we have (1) simples, which can be presented; (2) complexes, which can be either assumed or judged, but not presented. The point of most importance for logic is, in my opinion, the connexion of complexes and propositions; for theory of knowledge, the objectivity of propositions, and the existence and functions of assumption as opposed to judgment.

I.

The phrase "objects of higher order" is used by Meinong to cover relations and what he calls *complexions*, or what, in English, it would probably be better to call *complexes*. To establish the perceptibility of such objects is the main purpose of the article which he devotes to them; but incidentally many other points of great importance receive an illuminating discussion.

¹ This had been already pointed out by Frege, but had by him only been applied over a very small part of the field covered by Meinong's investigations, and had, moreover, not been established with anything approaching the same wealth of argument and illustration. For references, see below.

² The identity of propositions and complexes was maintained by Mr. G. E. Moore in his article on "The Nature of Judgment," MIND, N. S., No. 30, as was also the theory that truth and falsehood attach not to the judgment, but to the proposition, by which is meant the same as Meinong's Objective.

In psychical matters, at any rate in the case of presentations and judgments, it is necessary, Meinong points out, to distinguish three elements, the act, the content, and the object. All presentations have in common the act of presentation, but the presentations of different objects differ in respect of their contents. It is necessary sharply to distinguish content and object: the content of a presentation exists when the presentation exists, but the object need not exist—it may be self-contradictory, it may be something which happens not to be a fact, such as a golden mountain, it may be essentially incapable of existence, as for instance equality, it may be physical, not psychical, or it may be something which did exist or will exist, but does not exist at present. What is called the existence of an object in presentation is really not existence at all: it may be called pseudo-existence. But though it is essential to distinguish content and object, the content tends to be ignored in favour of the object; there are no natural designations for contents, which have to be named and distinguished by their objects.

Among objects, there are some that have an intrinsic lack of independence; thus diversity, for example, can only be thought of in relation to differing terms. Such objects are based on others as indispensable presuppositions: Meinong calls them "objects of higher order," and the presupposed objects he calls *inferiora*, in respect to which they (the objects of higher order) are *superiora*. An object which can have an *inferius* must have one; but an object which can have a *superius* need not have one (p. 190). Not all objects of higher order are relations: four nuts, *e.g.*, are such, for they presuppose each of the nuts. A melody, again, is such; and so is a red square, being compounded of a shape and a colour (pp. 184-192).

The above instances make it fairly plain what class of objects Meinong has in view: they are relations, the complexes formed of terms related by a relation, and the kind of objects (which we may call plurals) of which numbers other than 0 and 1 can be asserted. But before proceeding to new points, we must examine the description which he gives of such objects. They have, he says (p. 189), an internal lack of independence in their nature; they are built on other objects as indispensable presuppositions (p. 190). Omitting plurals, for reasons which will be mentioned shortly, there are certain difficulties about this description.

In the first place, it is based upon logical priority: the *inferiora* are in some way prior to their *superiora*. Now logical priority is a very obscure notion; and so far as can

be seen at present, it is one which a careful discussion tends to destroy. For it depends upon the assumption that one true proposition may be implied by another true proposition, and not the other by the one; whereas, according to symbolic logic, there is a mutual implication of any two true propositions. The appearance of one-sided implication in such cases arises, it would seem, from an unconscious substitution of formal for material implication.¹ Thus it would result that the subsistence or being of a whole cannot presuppose that of its parts in any sense in which that of the parts does not presuppose that of the whole.²

Connected with this point is a second, namely, that it seems impossible to distinguish, among true propositions, some which are necessary from others which are mere facts. Thus the statement that a *superius* must have an *inferius*, while the converse is not necessary, must be questioned: any two terms have some relations, and the relations they do have are as necessary to them as they (the terms) are to the relations. Throughout Meinong's work, in many crucial points, use is made of the notion of necessity; and some of his most important arguments fail if necessity is not admitted. The difference of green and yellow, he says, is necessary; but not so the fact that the sun is shining now (*Annahmen*, p. 188). But he adds in a footnote that this too, if considered in relation to its causes, may appear necessary, which seems to make the psychical process leading to a belief relevant in judging of necessity; and this, he admits, introduces a problem. Now when we consider what propositions we commonly call necessary, we find that they are: (1) all such as do not involve any particular parts of

¹ See *The Principles of Mathematics*, vol. i. (Cambridge, 1903), by the present author, chap. iii.

² It must be admitted, however, that one-sided inferences can practically be made in many cases, and that consequently some relation or relations other than that considered by symbolic logic must be involved when we infer. One such relation is that with which Meinong is concerned, the relation of the simple to the complex: the simple is prior to the complex in the sense that we can infer it from the complex, whereas the converse inference, even when it is valid, can only be seen to be valid, as a rule, if the conclusion is already known to be true. In this sense, logical priority may be derived from relative simplicity; but when this is done, we cannot, of course, use logical priority in defining the relation of simple to complex. When logical priority is spoken of in what follows, it will be always in this derivative sense, in which the components of a complex are prior to the complex itself. But this sense, though relevant in the theory of knowledge, appears to be inapplicable in logic: it would be better to call it epistemological priority, since it has an essential reference to our inferring.

time—*i.e.*, if they involve time at all, they involve all time; (2) all such as are seen to follow from true premisses, whether these are regarded as necessary or not. It is under the second head that an event becomes necessary when deduced from causes, for these, unless also so deduced, are not regarded as necessary. I cannot help suspecting that the whole feeling of necessity and contingency has been derived from the fact that a sentence containing a verb in the present tense—or indeed in the past or the future, unless with mention of a particular time—changes its meaning continually as the present changes, and thus stands for different propositions at different times, and as a rule sometimes for true ones, sometimes for false ones. And generally, when a proposition contains a term which we instinctively regard as variable, we feel that the proposition is contingent if some values of the variable make the proposition true, others false. For instance, when we say “the number of this cab has four figures,” we feel that it might have had five, because we think of all the other cabs we might have taken. But when this often unconscious thought of the variable is excluded, I cannot see that temporal facts differ from others in any way that could be called contingency.¹

A third objection is that relations, though not complexes, appear to be capable of being thought of apart from terms. If the impossibility is meant only in a psychological sense, it is probably true that most people find a difficulty in so thinking, though even then it is not any particular terms, but only the notion of some terms that is required. But it would seem that diversity, for example, or logical implication, is a simple notion, into whose composition the notion of terms does not enter; and that to learn to think of such a notion in itself is a feat which can be accomplished by practice. It may indeed be doubted whether relations can be adequately characterised by anything except the fact that they relate, or complexes by anything except the fact that they contain terms related. So far as any characterisation of complexes is possible, it is derived, in my opinion, from a certain kind of unity which Meinong himself has described later.

With regard to plurals, which are supposed by our author to have some unity making them more than a mere collection, it is impossible to speak without entering upon the whole question of classes and numbers, a question of the utmost difficulty, which I have discussed at length elsewhere.²

¹ On “Necessity,” see Mr. G. E. Moore’s article in *MIND*, N. S., No. 35.

² *Op. cit.*, especially chaps. vi., xv.

Plurals, in any case, differ widely from relations and complexes, and involve a different kind of logical problems. It will be well, therefore, in what follows, to exclude them from our discussions.

Returning now to the exposition of Meinong's doctrine, we find a careful attempt to characterise the unity of a complex. A complex implies a relation, and *vice versa*; it is more than the collection of its constituents, in virtue of the combining relation. Although the relation is part of the complex, the complex is not composed of the terms and the relation, for the terms are related to the relation in consequence of being related by it—a fact which leads to an endless regress, but of a harmless kind (pp. 193-194). A melody of four notes is not a fifth note, and generally a complex is not formed by adding an object to the constituents; nevertheless, something is added. What is added is the relation, but rightly related to the constituents: for red, green, and difference do not make "red differs from green" (p. 236).

All these remarks appear to be perfectly just, as is the remark (p. 196) that a relation or complex may have more than two terms. But the unity of a complex raises a logical problem, of which Meinong seems to be not fully aware. What is added, we are told, is the relation, rightly related; but when we consider the relation as well as the terms, we do not obtain the complex. And if we add the relations of the relation to the terms, and all the relations generated in the resulting endless process, we still do not obtain again our original unity, but only an aggregate. Thus what distinguishes our complex is not any constituent at all, but simply and solely the fact of relatedness in a certain way. Out of given constituents, even when account is taken of all the infinitude of relating relations, different complexes can be constructed: thus, *e.g.*, "*a* is greater than *b*" and "*b* is greater than *a*" differ in no respect which analysis can preserve. It is this special and apparently indefinable kind of unity which I should propose to employ in characterising the notion of a complex. The kind of unity in question belongs, as is evident, to all propositions; and the inadequacy of analysis appears, in this case, in the fact that propositions are true or false, while their constituents, in general, are neither.

Ideal objects, Meinong says, *i.e.*, such as are incapable of existence, are always objects of higher order. Similarity, *e.g.*, does not exist, but subsists (*besteht*); similarly quadruplicity does not exist where there are four nuts. But

there are also real complexes and real relations: such are the occupation of time and place, the relation of desire to its object, and the relations of parts in the unity of consciousness (pp. 198-199). Real relations are not necessary, but ideal ones are: the latter he calls well-founded (*fundirt*), and objects of this sort he calls well-founded objects (p. 202).

To the last statement we may object, as before, our doubt as to the notion of necessity; and on the preceding contentions, while fully admitting the general distinction of existence and subsistence, some criticisms seem called for. If only what does exist, has existed, or will exist, is capable of existence, as we must hold if we reject the traditional distinctions of modality, then there certainly are ideal objects which are not of higher order. Such are the points of a non-Euclidean space, or the imaginary particles of rational dynamics. If, on the other hand, to be a possible existent is held to mean no more than to have such a resemblance to actual existents as belong to these points and particles, then there is danger of Meinong's contention becoming a mere tautology. Thus it may be questioned whether, in any significant sense, all ideal objects are objects of higher order. The converse, however, seems capable of being maintained in spite of the instances adduced. We tend to ascribe existence to whatever is intimately related to particular parts of space and time; but for my part, inspection would seem to lead to the conclusion that, except space and time themselves, only those objects exist which have to particular parts of space and time the special relation of *occupying* them. On a question of this kind argument seems scarcely possible; and I can only record the fact that my inspection does not yield the same results as Meinong's. It is possible to suspect, however, that he has been led to his opinion by the fact that some objects of higher order can be perceived, and that he holds as self-evident the doctrine that what does not exist is not perceptible (p. 200)—a doctrine to which I shall return presently.

We come now to a careful and interesting refutation of the opinion of Schumann, according to whom internal perception reveals no objects of higher order. With this opinion, Meinong admits, common sense is inclined at first sight to agree: when we see red and blue, we do not seem to see their difference also. Consider, he says, the presentation of a steeple: internal perception assures us only of the "presented steeple," not of the real one. But internal perception yields not only the content, but also the (immanent) object—a fact which, since the latter has only pseudo-existence,

involves a fundamental problem in the theory of knowledge (p. 207). Indeed the seeing is less perceptible to internal perception than what is seen: it would seem that, except physical objects, internal perception reveals nothing but feelings, if even these (pp. 208-209). This result is the outcome of Schumann's line of argument when pushed to its logical conclusion. But such a result cannot stand before a more careful examination of the observable facts. It is plain that we often know, without a process of inference, and therefore by perception, that such and such is our opinion; and in this case we perceive a judgment by internal perception. That we have perceptions, which is an undeniable fact, can only be discovered by internal perception. It is to be observed that all perception, including internal perception, is not merely presentation, but also judgment, namely of the existence of the object. Again we perceive that we desire, and what we desire, and the relation of desire to its object; and of feelings the same is true. And it is plain that presentations can be perceived, for many have non-existent objects, which, being non-existent, cannot be perceived, so that the knowledge of such presentations must be derived from perception of them, not of their objects (pp. 212-218).

In order to examine the last of these arguments, of which the validity seems as doubtful as the conclusion is irrefragable, it will be necessary to examine what Meinong says as to the nature of perception itself. It is generally assumed—and Meinong appears also to assume—that perception is a kind of knowledge, whereas it may, I think, be maintained that perception is merely knowledge of a kind of truths, *i.e.*, that there is nothing distinctive, in perception, about the manner of knowing, but only about what is known. Before enlarging upon this thesis, however, I will set forth briefly what our author says upon this subject.

A thing is only perceived, we are told, when its existence is known immediately, *i.e.*, without inference from premisses, and is (at least practically) simultaneous with the knowledge. This is not quite exact; for the fixed stars which we now perceive may have long ago ceased to exist; but this inexactness applies specially to external perception. A perception is characterised as internal (1) by its object being psychical, (2) by its pre-eminent certainty and evidence (p. 212). As regards the approximate simultaneity of the content and the object of perception, this can be proved to be *only* approximate by such cases as the perception of a melody or a motion or any single complex whose constituents are

successive. The complex, in such a case, can only be perceived when all the parts have been perceived, and are still perceived: the temporally distinct *inferiora* of our complex must be given to presentation simultaneously, though not as simultaneous. When, after hearing the notes of a melody, I perceive the melody, the notes are not presented as still existing: their mutual time-relations and their relations to the time of presentation are all somehow involved, and the melody seems more or less past. It follows that a sequence in the object does not involve a corresponding sequence in the content, and that we can perceive what is past (pp. 244-255).

The above argument, which is set forth very fully, and appears quite unanswerable in regard to the perception of a temporal complex, leads to another, of rather more questionable validity, of which the conclusion is again that the past can be perceived. If we can only perceive what exists, not what did exist or will exist, it follows that we cannot perceive anything extended in time. But only what is real can be perceived, and an instant is only a limit, not anything real. Consequently it would follow that there is no perception. Not that we are to deny the existence of the point of time or space absolutely, but only of the point in isolation: the point does not exist, but subsist, yet where the point is, something may exist, only not confined to the point (pp. 259-260).

It is impossible, in this place, to argue the whole question of the nature of time; but as against Meinong, who appears to admit the existence of time, it may be enough to argue that instants are the ultimate constituents of time, and that a whole cannot exist if none of its parts exists. And if the existence of instants be admitted, the above argument fails: in order to retain anything of it, it will be necessary to assume (what is doubtless in some sense true), that we can only perceive existent things if they persist through a finite time.

Other less assailable arguments for the same conclusion follow. It is customary to speak of past and future as ideal in comparison with the actuality of the present; but we must admit the reality of past and future: the opposite course is unduly subjective, for the determination as past or future merely expresses a relation between the time of judgment and the time of the object, which is as irrelevant to the real as whether or when some one knows it. (This is a most lucid observation, by which a host of confusions are routed.) And there is no reason to limit perception to the present, for memory also is immediate, and grows more and more certain as the time elapsed grows shorter. Common

sense supposes simultaneity of perception and its object, because it assumes a causal or conditional connexion between the two. But such a connexion, if causal, makes simultaneity impossible; if conditional, unnecessary. Thus we may conclude that we can perceive what is past, though not without limit: the perceptible part may be called the "psychic present". It is thus that we perceive change and motion. The distinction between memory and perception loses its sharpness by this theory, especially as, strictly speaking, we can *only* perceive what is past; but the sharpness of the distinction appears to be fictitious (pp. 260-266).

Omitting, in the above discussion of perception, the parts in regard to which no criticism seems called for, certain points remain to be examined. The non-simultaneity of perception and object, where internal perception is concerned, need cause no difficulty; but in regard to external perception, such simultaneity seems part of what is perceived, and yet, as in the case of the fixed stars, it is sometimes very far from true, and always, according to physical science, more or less erroneous. Yet physical science depends throughout upon the trustworthiness of perception: hence, it would seem, the assumption of such trustworthiness destroys itself. It may be a sufficient escape, however, merely to deny that *present* existence is what external perception affirms, although such a denial seems to contravene the results of inspection in the interests of theory. The next point concerns the Cartesian maxim of the greater evidence of internal perceptions. Hobbes objected that "*ambulo ergo sum*" was just as good an argument as "*cogito ergo sum*"; and this view seems to be that of common sense. Indeed, as Meinong himself says (p. 210), materialism is the natural view of the plain man. But, judging from the course and tenor of his argument, he would appear to hold that this belief in physical objects is derived from *internal* perception. A presentation, with the three elements of act, content and object, is taken to be wholly psychical, and the object, like the other two, is supposed to be part of the total mental state—so at least some passages suggest. Thus the object is spoken of as "immanent," and in the case of the steeple, internal perception is said to assure us of the "presented steeple," not of the real one. Consequently the materialism of the plain man, if such a derivation be correct, must be derived from perception of what belongs properly to psychology—a process whose complication seems very far from the facts. As against this view, I should prefer to advocate what is, presumably, the distinguishing feature of a common-sense

philosophy, namely, that the object of a presentation is the actual external object itself, and not any part of the presentation at all. Thus to take the case of the steeple: we have (1) external perception, having as its object the actual steeple itself, or rather the existence of the steeple, the wholly extra-mental material thing; (2) purely internal perception, having as its object the existence of either the act or the content of the previous external perception; (3) the perception of the object of higher order, consisting of the perception and the existence of the steeple combined by the relation of cognition. (The objects of (1) and (2) are themselves of higher order, but that of (3) is a *superius* of which they are *inferiora*.) The reasons in favour of this common-sense view are briefly the following. As regards the external perception, if two people can perceive the same object, as the possibility of any common world requires, then the object of an external perception is not in the mind of the percipient. Consequently in this case, and therefore possibly in every case, the perception consists only of act and content, the object being an outside related entity, or rather proposition (namely the proposition that what is loosely called the object exists). As regards internal perception, it must be admitted that, in its pure form, it is exceedingly difficult: contents, as Meinong himself confesses, are "*wahrnehmungsflüchtig*". Thus when we mean to think only of what is psychical, we are almost inevitably led to think instead of the cognitive complex, consisting of the knowledge together with what is known; hence what is known (the proposition) comes to be viewed as also psychical, in spite of the highly inconvenient consequence that two people, in that case, cannot know the same proposition.¹

I have spoken hitherto, being concerned with what is commonly called perception, only of the awareness of *propositions*; for all the cases concerned are, as Meinong says (p. 216), cases where something is known to exist, and where, consequently, the object of perception is an existential proposition. But it seems undeniable that there is also a mere awareness, in which the object is not a proposition; for unless we were aware what redness is, we could not know that redness exists. Except, however, for this *a priori* argument, it would be more natural, as the result of inspection, to deny any such awareness; when we try to think of redness, we seem only to succeed in thinking of redness as

¹ In his work *Ueber Annahmen*, Meinong, as we shall see, approaches much nearer than in the earlier work to the position which I advocate.

existing, *i.e.*, of what Meinong calls the *Annahme* "redness exists".¹ But however this may be, mere awareness, having as its object something neither true nor false, is widely different from cognition; and perception, in its usual significance, is a kind of cognition, namely cognition of existence.

Returning now to the question whether perception is to be defined by the way of knowing or by the kind of proposition known, we see that one mark at any rate is always associated with the word *perception*, and that is the absence of previous inference. This certainly is not a property of what is known, for everything that is known might theoretically have been known by inference, except possibly a few of the fundamental principles of logic, which are presupposed in all inference. But it appears also to be not a property, in any strict sense, of the knowledge: for when the object of a judgment is given, it would seem that the judgment is also given—*i.e.*, there is merely the knowledge of a given proposition, not different kinds of knowledge of it. Thus it follows that previous inference is a merely external relation of a cognition, which cannot affect its own nature. Yet, when we see Neptune and when we infer it, there is a wide difference of the two cases. This seems to be accounted for chiefly by two facts: (1) that a proposition perceived is not expressed in words, (2) that it always forms part of an infinitely complex spatio-temporal continuum, and is not, in perception, attended to in isolation. But in cases where the proposition concerned is abstract, say the principle "when *q* follows from *p* and *p* is true, then *q* is true," the fact that no possible inference can warrant our belief in this proposition, since all inference employs it, does not alter the quality of our belief in any way. Analogous propositions which *are* inferred come to be assented to in a precisely similar manner, *i.e.*, without any intrinsic difference in the feeling involved. Thus it is legitimate to suppose that, in the case of spatio-temporal propositions, the above two points may account for the felt difference.

But perception commonly implies also that what is perceived is an existential proposition concerning a time which is very nearly the present; and there is usually a more or less covert assumption that this mark is connected with that of not being inferred. That all premisses are obtained from perception in this sense, *i.e.*, that whatever can be admitted without proof is an existential proposition concerning the

¹ Meinong holds that a mere presentation does not have an object, but only acquires one through combination with an *Annahme*: *Ueber Annahmen*, p. 101. See below.

present or the immediate past, is the creed of thorough-going empiricism—a creed, however, which cannot be held by any one who has ever considered that proof itself involves logical principles which cannot in turn be proved. This one instance (of logical principles) suffices to show that self-evident propositions need not be derived from perception in this narrow sense; and when the possibility is admitted, it becomes easy to see that immense numbers of non-existential unproved propositions are self-evident.

It follows, if what has been said is true, that there is no validity in Meinong's argument (p. 218) that presentations must be perceptible because we know of such as have non-existent objects, and the non-existent cannot be perceived. We must hold that the Being, or, as Meinong says, the subsistence, of the non-existent is often immediately known; and many other propositions are known concerning the non-existent otherwise than by inference. The process suggested by Meinong's argument is, in any case, exceedingly and curiously complicated. First we think of a golden mountain, then we perceive that we are thinking of it; thence we infer that there is a presentation of a golden mountain, and thence finally that the golden mountain subsists or has Being. But when we originally thought of the golden mountain, we already perceived, or at least could perceive if we chose, that the golden mountain subsists; and the round-about road *via* our presentation seems quite superfluous. The doctrine that the object forms no part of the presentation must be extended to the case where the object is what we call imaginary, *i.e.*, does not exist; and in the case of mathematical objects, such as numbers, this seems plain enough. And it is thus that the theory of knowledge becomes subsequent to logic and to the objects of knowledge in general: for, in Meinong's phrase, the objects of knowledge (propositions) are the *inferiora* for which and the cognition the cognitive relation is the *superius*. The theory of belief, in which no distinction is made between correct and erroneous belief, is a branch of psychology which is on a par with the study of the objects of belief; but belief is only knowledge where the cognitive relation subsists, *i.e.*, where the object is true, and thus, if Meinong's doctrine of the logical priority of *inferiora* to *superius* is to be maintained, the theory of knowledge must be subsequent both to logic and to psychology.

The relevant facts in regard to perception appear to me to be briefly these: Many propositions, of very various kinds, are self-evident, *i.e.*, are accepted without being proved by means of other propositions. All self-evident propositions,

or rather, such of them as are true, may, in the widest sense, be said to be perceived. But there is a peculiar class of self-evident propositions concerned with particular parts of time, and only becoming self-evident at, or just after, the parts of time with which they are concerned. These, when they are true, may be said to be perceived in the second sense. But some of these, in my opinion, are not properly existential, being concerned with relations which *subsist*, but do not strictly exist, though Meinong maintains that they do exist. (These are what he calls *real* as opposed to *ideal* relations.) Thus we reach the third and narrowest meaning of perception by excluding from our second class all such propositions as are not existential.¹

The very interesting theory of objects which are "*wahrnehmungsflüchtig*," or fugitive from perception, by which Meinong answers the doubt as to whether objects of higher order can be perceived at all, is almost purely psychological, and will therefore not be discussed here. I also pass by, as lying somewhat outside the main argument, an admirable analysis of the perception of continua considered as complexes. The chief criticisms of the article, from the standpoint which I have adopted, are (1) that the notion of perception, and its epistemological importance, are not made clear; (2) that the object of a presentation or perception is regarded as forming part of the presentation or perception, or at any rate as something necessarily psychical. In regard to this last point, it may be worth while to raise the following question for the consideration of the reader. Is it possible to have a presentation or belief to which no object corresponds? The converse possibility, except by those (of whom Meinong is not one) who hold that there can be nothing that is not known to some mind, will be at once admitted; but the idea of a belief which is a belief in nothing seems at first sight quite inadmissible. Yet, by all analogy, it ought to be possible, if content and object are related as externally as I have contended, for either to subsist without the other. The chief importance of the question is in regard to error. What do we believe when we believe a false proposition? We believe in a relation (say)

¹ The above method of defining perception, though it appears to give a first approximation, is liable to certain objections, which have led Mr. G. E. Moore—with what justice, I do not attempt to decide—to introduce into the definition of perception a causal relation between that whose existence is known and the knowledge of its existence. See his article on "Experience and Empiricism," *Proceedings of the Aristotelian Society*, 1902-3.

between two terms which, as a matter of fact, are not so related. Thus we seem to believe in nothing: for if there were such a relation as we believe in, the belief would not be erroneous. If a belief may be a content which has no object, then it may be true that, though we believe, there is nothing we believe in; and in this case correct beliefs would be distinguished from erroneous ones by the fact that they have an object, while the others have not. But this possibility seems too paradoxical to be maintained except in the last resort; and such cases as true hypotheticals of which the hypothesis is false seem to prove that false propositions must have some kind of extra-mental subsistence. This question is, however, a very large one, being indeed, no other than Pontius Pilate's, "What is truth?" I shall return to it at the end of the present article.

(To be concluded.)

IV.—THE USE AND ABUSE OF FINAL CAUSES.

BY G. E. UNDERHILL.

IN preaching the gospel of natural science Bacon told us “*Natura non nisi parendo vincitur*”. From another point of view Kant replied—“The understanding makes Nature, but does not create it”. Both sayings contain great truth; but at most they are only half truths. Scientific discovery is as impossible without scientific imagination as it is without scientific observation. Man can only find what he seeks; yet what he finds is there already. Countless men had seen apples fall to the ground before Newton; and yet Newton alone discovered the law of gravitation. Many a photographer had found his plates spoilt by the X-rays before Röntgen; and yet Röntgen alone discovered the significance of their marks. Nature keeps her secrets well and can be forced to divulge them only by the most strenuous efforts on the part of man, *natura minister et interpres*; and the only key with which he can unlock them is himself, his own ideas, his own interests, his own intellect, his own will: and his experience reveals to him not only that Nature is intelligible—more or less—to his intelligence, but pliable to his practical interests, if he but use the proper means. The gulf betwixt him and Nature he finds to be not absolute, but bridgeable by many chains of his own forging. Puny man cannot resist the force of the ocean storm or the fire of the active volcano, but he can use the wind to waft his ships over the sea, and the fire to cook his food or drive his engines. He is at once the victim and the master of Nature, the child and the maker of Nature. He not only discovers the truth of his ideas by observing their agreement with the facts of Nature, but he finds that they work out into practical results. He can never separate theory and practice: without theory no practice, without practice no theory. “*Scientia et potentia*,¹” says Bacon, “in idem coincidunt, quia ignoratio causæ destituit

¹ *N. O.*, i., 3.

effectum," and in another passage¹ he quotes with approval the Aristotelian maxim "Vere scire est per causas scire," and the Aristotelian distinction of four causes, *Materia, Forma, Efficiens, et Finis*: and then follows his famous condemnation of final causes: "ex his causa finalis tantum abest ut prosit, ut etiam scientias corrumpat, nisi in hominis actionibus"—a condemnation reinforced afterwards by Spinoza and under certain limitations sanctioned by Kant, who in his *Kritik of Judgment* has done more than any other philosopher since Aristotle to put the doctrine of final causes on its proper basis—with what success will be considered later.

To clear the ground however let us first consider what exactly Bacon meant, and then why Spinoza was so peculiarly opposed to final cause from any point of view. This done, Kant will enable us to see how far the idea of final cause can safely be used in scientific investigation and in philosophy—what is its use and what its abuse. And then perhaps we shall be in a position to carry his statements a little farther, and frame a more modern doctrine of our own—in spite of Mr. Bradley's warning² that "this question of the operation of Ends in Nature is one which, in my judgment, metaphysics should leave untouched".

The passages in the *De Augmentis Scientiarum*, where Bacon deals with final causes, are so often forgotten or misunderstood that it will be well to examine them with some detail. These passages occur³ when he is speaking of Natural Philosophy, not of the *Doctrina de Homine*; as a matter of fact in the later portion of the treatise, where he deals with man, he never alludes to final causes, although, as we have seen in the *Novum Organum*, he had approved their use "in hominis actionibus". *Philosophia Naturalis* Bacon subdivides into *Speculativa*, which is concerned with the investigation of causes; and *Operativa*, which issues in the production of effects. This *Speculativa* he again divides into *Physica*, which investigates material and efficient causes; and *Metaphysica* (*purgato nomine*), which investigates formal and final causes.

Hence has arisen the first misunderstanding of Bacon's meaning. For his readers have often forgotten that his own favourite "forms"—not indeed "abstractæ," but "in materia determinata"—he also puts under *Metaphysica* (*purgato nomine*), and have only remembered that he relegates final causes to *Metaphysics*—to what they take to mean, his limbo for useless notions: whereas in this context he really means by the term *Metaphysica* what the modern

¹ *N. O.*, ii., 2.

² *Appearance and Reality*, p. 497.

³ iii., 4.

scientist calls abstract Physics as opposed to applied Physics. What Bacon does blame is the substitution of final for efficient causes in Physics. This he explains quite clearly: thus in Metaphysics (*purgato nomine*) you may properly say "the eyelids with their hairs for a hedge and rampart are to protect the eyes"; or "the firmness of animals' skins is to keep off the heat and cold". But in Physics such final causes are useless: herein the efficient causes must be given; thus "Hairiness," you must say, "is wont to accompany the openings of damp substances (*humiditates*)"; or "the firmness of animals' skins is due to the contraction of the pores in the exterior of the body owing to cold and to the exclusion of air (*deprædationem aeris*)".¹ As he says himself: "neque hæc eo dicimus quod cause illæ finales veræ non sint, et inquisitione admodum dignæ in speculationibus Metaphysicæ; sed quia, dum in Physicarum Causarum possessiones excurrunt, et irruunt, misere eam provinciam depopulantur et vastant". Again what he blames in Aristotle is not his use of final causes as such, but his attributing final causes or design to Nature instead of to God.

Still worse misunderstood has been the passage in which Bacon speaks of the literal unproductiveness of final causes. Bacon had divided *Philosophia Naturalis*—it will be remembered—into *Speculativa* and *Operativa*. In the following chapter² he goes on to speak of the latter and says that *Operativa* falls into two divisions: (1) *Mechanica*, corresponding to *Physica*, which produces by means of material and efficient causes; and (2) *Magia*, corresponding to *Metaphysica*, which produces by means of formal causes. Then he explains that in this subdivision of *Operativa* there is nothing corresponding to the metaphysical (*purgato nomine*) investigation of final causes: "nam causarum finalium inquisitio sterilis est, et tanquam virgo Deo consecrata nihil parit, i.e. non parit opera". Bacon, as the context shows, is here thinking of Physics and Chemistry, and in this sphere it is obvious that final causes can lead to no practical applications. The biological sciences, where alone final causes do lead to practical results, have no place in Bacon's *Philosophia Naturalis*. Later on³ he has indeed something to say about human anatomy, where he advocates both dissection of corpses and vivisection of animals; but curiously enough he nowhere seems to introduce the conception of function or adaptation, and certainly nowhere introduces the technical term *causa finalis*. Similarly, when later on he comes to speak of Ethics and Politics

¹ *E. and S.*, p. 570.

² iii., 5.

³ iv., 2.

and their various subdivisions he has not a word to say about Final Causes, although he approved in the *Novum Organum*, as we have seen, of their use in *hominis actionibus*.

In fact the only connexion of Bacon with the doctrine of final causes is accidental. He blames their use in Physics; he approves of their use in Metaphysics = (*purgato nomine*) our modern abstract Physics. But he never explains how they are to be sought for in his own *Metaphysica*. Thus both his rejection and admission of final causes have been, as a rule, misunderstood by writers on logical theory, who have been wont to assign him a place out of all proportion to the importance of his statements about them. Really he throws no light whatsoever either upon their use or abuse.

Spinoza's rejection of final causes is much more uncompromising: but a careful examination of his meaning will show that he rejects their use *ex analogia hominis*, as Bacon put it, not *ex analogia universi*. In fact, of their scientific use he has nothing to say: for in science he adopts the thoroughgoing mechanism of Descartes, and with the biological sciences he has nothing to do. In his time they can hardly be said to have existed. All his arguments against the scientific and philosophical abuse of final causes he has collected together in a brief appendix to the first part of his *Ethica*. There Spinoza traces the search for final causes to the anthropocentric tendency of human thought. "Men commonly suppose," he says, "that all things in Nature act, like themselves, for a purpose; insomuch that they make sure that God himself orders all things for some fixed end; for they say that God made all things for man's sake and man to worship him. The origin and ground of this belief is that men, *being ignorant* of the *real causes* of things and having a desire to seek their own interest, think themselves free to act with a view to the desired end. Of this desired end they are conscious, but they know not the causes which arouse the desire. Thus they come to regard the final cause or purpose of an action as a necessary and sufficient explanation of that action. But if in the case of another person's action they can get no positive information of its purpose, they are obliged to guess from the analogy of their own motives by which they have on other occasions been determined to actions of a similar kind. Then finding so many things in nature useful for human life—the eyes for seeing, the teeth for masticating, vegetables and animals for food, the sun for light, the sea for feeding fishes, etc.—they regard all things as instruments for man's use; and knowing that they found and did not make these conveniences, they infer

that some ruler of the world, having freedom like that of human agents, must have made them of set purpose for the benefit of mankind." Convinced that Nature does nothing in vain, *i.e.* without regard for the use of mankind, men persuaded themselves that all Nature's inconveniences—like storms, earthquakes, plagues, etc.—were sent them as punishments for wrongdoing. And, says Spinoza, "though experience did every day protest, showing by numberless examples that conveniences and inconveniences befall the pious and impious alike, they found it easier to assume that mischievous things had unknown uses than to reconstruct their habits of thought; and so made the further assumption that the counsels of God were far beyond human understanding".

Spinoza proceeds to bring forward further arguments to show that "omnes causæ finales nihil nisi humana esse figmenta". Among these arguments are: (1) that it is to mistake effect for cause and *vice versa*; (2) that it makes what is by nature prior, posterior; and (3) that it makes what is most perfect and supreme, most imperfect: for if God acts for an end, it must needs be that God desires something which he lacks and *ipso facto* is imperfect. Moreover upholders of final causes defend their doctrine by a new method of arguing—by reduction, not *ad impossible*, but *ad ignorantiam*. For example, a tile falls from a roof on a man's head and kills him: the tile, they argue, must have fallen on purpose to kill him. Otherwise, if it had not been God's will, how could all the circumstances have concurred just then and there? You may answer: It happened because the wind blew and the man was passing that way. They will urge—Why did the wind blow and why did the man pass that way just at that time? If you suggest fresh reasons, they will ask similar questions, because there is no end of such questioning, until you take refuge in that *ignorantia asylum*, the will of God.

Finally Spinoza goes on to explain that current notions of good and evil, order and chaos, beauty and ugliness, etc., are relative to men's organs and dispositions. Thus men call whatever conduces to their own well-being *good*; whatever is the opposite of this *bad*. And because those who do not understand the nature of things, have nothing true to say about them, but only *imagine* things and mistake their *imaginings* for understanding—on that account they are firmly convinced of an *order* in things. For those things which are of such a sort that, when they are present to our senses, they can easily be imagined and consequently be

remembered easily, men are apt to call well-ordered; and things of a contrary sort, ill-ordered or confused. This good *order* they attribute to a beneficent Deity, quite forgetting the infinity of things which surpass our feeble imaginations. And thus it is that good and bad, beautiful and ugly, etc.—notions which are nothing but human ways of imagining things,—come to be considered by the ignorant as the most important properties of *things themselves*.

In the same way Spinoza would answer the common difficulties concerning his doctrine of the perfection of the universe. If, it is objected, everything is the result of God's perfection, whence come the many imperfections of Nature—corruption, ugliness, disorder, evil, sin? These, Spinoza answers, are merely human ways of imagining things. "For the perfection of things," he says, "is to be estimated from *their own* nature and power alone: and things are not more or less perfect because they delight or offend the senses of men, or because they are convenient or repugnant to human nature. If any ask, why God did not so create men that they should be governed by reason alone, I answer but this: because he lacked not matter for creating all things—from the highest down to the lowest degree of perfection: or to speak more exactly—because the laws of his own Nature were so vast as to suffice for producing all things which can be conceived by an infinite understanding."

Here Spinoza leaves his arguments—arguments all directed against *cause finales ex analogia hominis*, interpreted in terms of human interests—against what Kant, as we shall see, calls external ends as opposed to internal ends—against ideals not yet real but to be realised. For to Spinoza God and the universe, as in God, are perfect ἐνέργεια and are never more or less perfect: so there can therefore be no future realisation of an end, because all is perfect as it is. For him there is no *eidos* existing only δυάμετ, whose *télos* it is to be realised ἐνέργεια: for if the universe be taken as a whole, it is already and always ἐνέργεια ὄν. In Spinoza's universe there is no place for change or development; all is real and actual. It is *τελεῖον* already, because God is *τελεῖος*; and thus the *eidos* is the *télos* and the *télos* is the *eidos*.

Thus final causes are to Spinoza mere illusions, *first* because they are *humana figmenta*—not the real causes or real properties of things, which are only ascertainable by the mathematical sciences; *secondly*, because in defiance of experience they interpret all things in terms of human utility and convenience, whereas there is no reason to suppose that man is the centre of the universe; and *thirdly*, because they

are inconsistent with his own conception of God and the universe, which admits neither of time nor change nor imperfection. But we may ask, are final causes any more or less *humana figura* than the mechanical and mathematical conceptions of science, which Spinoza assumes to be real properties of things? Again, are final causes necessarily interpreted in terms of human utility and convenience? and finally are time, change and imperfection mere illusions, merely relative to man?

Kant's treatment of final causes in the second part of the *Kritik of Judgment* will help us towards a solution of all three difficulties: he has once and for all settled the logical place of final causes in the biological sciences. He draws a clear and important distinction between internal and external ends or purposes. In the latter sense final cause is utility, *e.g.* iron is useful to men for ship-building, and with final cause in this external sense the biological sciences have nothing to do. By internal end Kant signifies the function or functions in an organism which the various organs are adapted to fulfil, *e.g.* sight is the internal end of the eye, hearing of the ear, the mature animal of the embryo. "For example," says Kant,¹ "a tree may in three ways be so regarded as an end to itself or internal end. (1) A tree generates another tree according to known laws. But the tree produced is of the same genus; and so it produces itself *generically*: for in the genus it as *effect* is continually produced by itself, and as *cause* continually maintains its generic existence by repeated self-production. (2) A tree produces itself as an individual. This kind of effect we call growth; but growth is quite different from any increase according to mechanical laws, and is just generation under another name. In adding to its bulk the tree first communicates to the new matter which it absorbs a characteristic quality, which cannot be bestowed by the mechanism of nature without it; and thus the tree develops itself by aid of a material, which as to its mode of composition is its own product. For though, as respects the constituents got from nature without, such material must be regarded as having merely a derived existence; yet in the separation and recombination of this raw material the tree displays an originality with which art cannot attempt to cope. . . . (3) The parts of the tree produce each other in such a way that the maintenance of any one part depends reciprocally on the maintenance of the rest. The bud or scion of one tree grafted on another produces in the alien stock a

¹ § 64.

plant of its own kind. Hence we may regard every twig or leaf in a tree as merely grafted on it and so as an independent tree which attaches itself to another, and parasitically nourishes itself therefrom. At the same time while the leaves are the products of the tree, they likewise in turn give support to it; for the repeated defoliation of a tree would kill it, and its growth thus depends on the reaction of the leaves upon the stem." Such internal ends,¹ or ends of nature, have the following characteristics: (1) As in a work of art, the parts are in their existence and their form conditioned by their relation to the whole. (2) The parts must be so united in the whole, that they are reciprocally causes and effects of each other's form, and that each is in relation to the others a productive organ. In other passages Kant warns us against ascribing intelligent design to nature. "Nature," he says,² "we do not regard as an intelligent being." And again—"Objective purposiveness, as a principle of the possibility of things of nature, is so far removed from *necessary* connexion with the concept of nature, that it is much oftener precisely that upon which one relies to prove the contingency of nature and its form. When, *e.g.*, we adduce the structure of a bird, the hollowness of its bones, the disposition of its wings for motion and of its tail for steering, etc., we say that all this is contingent in the highest degree according to the mere *nexus effectivus* of nature—without calling to our aid a particular kind of causality, namely, that of purpose, *nexus finalis*. In other words, nature, considered as mere mechanism, might produce its forms in a thousand different ways without stumbling upon unity in accordance with such a principle. It is not *in* the concept of nature, but quite *outside* it that we can hope to find the least ground *a priori* for this.

"Nevertheless," Kant goes on, "the teleological act of judgment is rightly brought to bear, at least problematically, upon the investigation of nature; but only in order to bring it under principles of observation and inquiry according to the *analogy* with the causality of purpose, without any pretence to *explain* it thereby. It belongs therefore to the reflective and not to the determinant judgment." In other passages Kant calls final cause a heuristic principle or again a regulative, not a constitutive judgment—phrases which in plainer English mean that the conception of final cause is a mere postulate or working hypothesis, which experience teaches us to be of great service in the investigation of all organisms,

¹ § 65.

² § 61; cp. § 68.

vegetable and animal. But the distinction between reflective and determinant judgment, or its synonyms regulative and constitutive judgment, goes back to the Kantian epistemology —to his own arbitrary distinction between Understanding and Reason, according to which efficient causality is a conception of the Understanding, but final causality an idea of the Reason. According to this doctrine, the ultimate laws of Nature, like causality, substance and reciprocity, are *a priori*, universal and necessary, and as such are conceptions of the Understanding, which, though they become consciously known in the course of our experience, are in no sense derived from experience, but are *a priori* principles of synthesis which the Understanding imposes upon Nature and by aid of which the Understanding produces order and system out of the chaos of sense-perceptions. Yet at the same time that Kant claims this *a priori* origin for the most general laws of Nature, he admits the empirical origin of all the more special laws of Nature, like, *e.g.*, the law of gravitation and the laws of motion, though he is unable to give us any *differentia*, whereby to distinguish the one class of laws from the other. In fact we have here come upon the weak point in Kant's whole theory of natural science. By a sort of circular argument he assumes that these most general laws of Nature are *a priori*, because they are universal and necessary; and that they are universal and necessary, because they are *a priori*. He does not appreciate the significance of Hume's distinction between relations of ideas to one another and matters of fact, and so fails to see that the necessity of all natural laws, so far as they have any necessity at all, is only logical, not real, necessity. In other words he does not realise the full significance of the ideality of the subject-matter of all the natural sciences, that no science deals with the concrete individual of perceptual experience as such, but only with certain aspects common to many individuals, which are abstracted ideally from their particular surroundings; and that it is in this sense that science, as Aristotle said, is always of the *καθόλου*, never of the *καθ'εκαστα*.

We shall understand this better if we take Kant's category of causality as our example, the category which he regards as the most fundamental of all the laws of Nature. Hume, testing the conception by reference to our sense perceptions, had reduced causality to invariable succession; and the necessary connexion regarded by philosophers as underlying our conception, he maintained, was only a mental fiction due to the arbitrary association of our ideas of actual causes and effects. Kant replied that causality is not a mental

fiction, but a mental principle of synthesis, and that without causality as a *prius* we could never attain to the idea of succession at all. But if Nature be taken in its mechanical aspect only, as consisting of the primary qualities of matter, Hume's analysis is perfectly right. In this mechanical world causality, so far as natural science can know it, is mere succession; and the causality which Kant would attribute to Nature is the efficient causality which we are conscious of in the actions of our own wills. Whether ultimately we are justified in attributing *ex analogia hominis* the same or similar causality to Nature is a further question and a metaphysical question. But with such causality mechanical science as such has nothing to do: it can get on better without assuming it and *entia non sunt multiplicanda præter necessitatem*. In fact, if by Nature we mean the Nature of mechanical science (and this is what Kant in this context does mean by Nature), causality in its full sense is not a constitutive principle or determinant judgment at all. So long as we stick to quantities causality is merely the invariable sequence of consequent upon antecedent, nothing more nor less: for such sequence alone admits of mathematical determination in terms of number and quantity. Really,¹ the objects of all mechanical sciences are not the things of common experience as such at all, but only one particular aspect of them, namely, their primary qualities; and this aspect, like all other particular aspects, is arrived at by mental abstraction and construction. Equally true is it that the mechanical explanation or description of these primary qualities, when it is given, is just as much a mental product. Though it deals with matter and motion, it is expressed in terms of law, number, or measure—all three of them mental products. But so soon as we pass from quantitative to qualitative relations and changes, causality merely as succession is not sufficient. As a working hypothesis we find ourselves forced to use the notion of efficient causality, of the power to produce, as when we observe the heat of the sun melting wax. Mechanical science of course attempts to reduce qualitative to quantitative relations; but when it is unable to do so—and in many cases it is unable—then it can hardly move a step without the working hypothesis or conception of efficient causality. In Kantian language we use efficient causality as a heuristic principle, going beyond our sense-perceptions in order to reduce their manifold to unity. Only, as we have seen

¹ Cp. Sturt's *Personal Idealism*, p. 207.

already, Kant is not content with calling the law of causality a mere heuristic principle. He calls it a category of the Understanding, which the Understanding uses in its creation of Nature, and which, as an *a priori* principle of synthesis, is just as universal and necessary as are the laws of logic and mathematics. But for science, whatever it may be for metaphysics, we maintain that this is just what it is not. As Paulsen puts it,¹ "in physics we have to reckon with an irrational factor, which renders it impossible to decide upon the truth of propositions by means of mere immanent reflexion; we must consult sense-observation. And this irrational factor does not disappear even in the ultimate principles. It is attached to the laws of biology and chemistry, and likewise to the laws of mechanics. . . . What they need is a working maxim for their investigation, and they have that in the law of causality or the principle of the uniformity of nature, even if it is not a law of the pure understanding, but merely a principle constructed by the understanding on the basis of the datum and found to be useful."

So when we pass from physics and chemistry to biology—to the science of organisms, our logical procedure is exactly the same. Organisms as concrete particular individuals are not possible objects of science at all, until we can discover what common qualities they possess. These common qualities we can in thought abstract from the particular individuals possessing them, and according to their different natures they fall within the scope of different sciences, each of which in its investigations uses its own appropriate principles (*ἰδίαι ἀρχαί*) or working hypotheses. So far as organisms exhibit mechanical properties, these properties, these quantitative relations, are dealt with by the mechanical sciences of number and measure, where causality as mere succession reigns supreme. Again, so far as organisms possess chemical qualities, they are dealt with by chemistry; and when these chemical qualities defy analysis in terms of quantity, then the chemist finds himself obliged to introduce efficient or productive causality as his working hypothesis, simply because his own and others' experience proves it to be useful. Finally organisms, over and above these primary and secondary qualities, exhibit the adaptation of organs to functions; and here the only fruitful principle that the biologist can use is the conception of final cause—of the adaptation of means to ends, which like the principle of efficient causality and in-

¹ *Kant*, E. T., p. 205.

deed all other scientific principles, has its basis in our own experience, in this case, the experience of our own conscious adaptation of means to ends in our voluntary actions. But he need not, in fact he does not, use the conception in its entirety—at least for the purposes of his science. For though he cannot get on without the conception of adaptation of means to ends, he need not, as a biologist, assume in the organisms with which he is dealing, self-conscious personal subjects, who purposely design means to carry out preconceived ends. Such an assumption is quite unnecessary, because it is not required for his interpretation of the observed facts of his science. It is not an element in the abstract conception of organism, which *ex hypothesi* stands as the fundamental conception of his science. On the other hand the sociologist in investigating the facts of human society makes the conception of purposively acting self-conscious agents the starting-point or working hypothesis of all his subsequent researches. Such then is the logical place of final cause in biological science: it is the appropriate conception which the nature of the subject-matter forces the mind to use in its investigation of the adaptation of means to ends in organisms, and its justification is simply its success. No biologist can get on without it; the written works of all biologists from Aristotle to Sir Michael Foster are full of it.

But before we leave the place of final causes in biology, there is one other point to be noticed, which goes far to explain the prejudice still found in modern scientists against them.¹ This point is that the conception of final cause has often led to the discovery of the efficient and mechanical causes, as, *e.g.*, in the case of Harvey's discovery of the circulation of the blood; and that as the latter alone are practically useful, final cause may be neglected as the mere scaffolding to the main building. Thus Robert Boyle² tells us: "I remember that when I asked our famous Harvey, what were the things which induced him to think of a circulation of the blood, he answered me that, when he took notice that the valves in the veins of so many parts of the body were so placed, that they gave a free passage to the blood towards the heart, but opposed the passage of the venal blood the contrary way—he was incited to imagine that so provident a cause as Nature had not placed so many valves *without design*, and no design seemed more probable than that the blood should be sent through the arteries and

¹ Cp. Sigwart, *Logic*, Eng. Trans., ii., 172.

² *Inquiry into the Final Causes of Natural Things*, §§ 1-2.

return through the veins, whose valves did not oppose its course that way". Harvey's observation of the function or final causes of these valves led him to the investigation of the mechanical problem, how, when so much blood was forced out of the heart at each beat of it, the supply of blood was yet maintained, and to this problem he discovered the mechanical solution in the circulation of the blood. Now the description of mechanical causes always admits of much greater precision—often mathematical precision—than the description of final causes, and moreover mechanical causes come first in the order of production and are therefore of more practical use. But, as Sigwart points out,¹ so far from there being any inconsistency between the two points of view, "the final concept does not contradict the causal treatment, but insists upon it". The end *P* is the joint product of certain efficient causes *abc*, working in relation to each other, and the mind of the investigator can travel according to convenience either backwards from *P* to *abc*, or forwards from *abc* to *P*. Here² "the importance of the final concept rests only upon the fact that it expresses the unity of a system of parts which are such that when taken in isolation we are unable to deduce this particular combination (*P*) from their nature". This procedure is precisely like the procedure in geometry when we assume the problem already solved with the view of discovering geometrical means to its solution.

Enough however has now been said to prove the utility of the concept of "internal" final cause in biological science; for if it can be shown to be useful, no other justification is needed for its scientific adoption—any more than for any other scientific working hypothesis. But the evolutionary biologist cannot stop here: for he is concerned³ not only with (1) "the universal essence upon which the organic is grounded" and (2) "its laws of development," but also with (3) "the external causes which determine it in this or that direction". Here he cannot indeed avoid the application of the conception of "external" final cause as a working hypothesis for his study of the *environment* of organisms, but he finds its application far less successful and universal. As Kant puts it,⁴ "the internal form of a mere blade of grass is sufficient to show that for our human faculty of judgment its origin is possible only according to the rule of purposes. But if we change our point of view and look to the use which other natural beings make of it,

¹ Sigwart, ii., p. 176.

² Cp. Sigwart, ii., p. 332.

³ *Ibid.*

⁴ § 67.

abandon the consideration of its internal organisation and only look to its externally purposive references, we shall arrive at no categorical purpose. . . . Hence it is only so far as matter is organised that it necessarily carries with it the concept of a natural purpose, because this, its specific form, is at the same time a product of nature. But this concept *leads necessarily* to the idea of collective nature as a system in accordance with the rule of purposes." In other words the biologist is led to make the assumption that "everything in the world is in some way good for something: nothing is vain in it". "By the example that nature gives us in its organic products we are justified,"¹ says Kant, "nay, called upon, to expect of it and of its laws nothing that is not purposive on the whole." Then the assumption of external purposiveness once made, the only way to justify it is to discover how far it works. "There is," says Kant,² "only one external purposiveness which is connected with the internal purposiveness of organisation, and yet serves in the external relation of a means to a purpose, without the question necessarily arising—to what end this being so organised must have existed. This is the organisation of both sexes in their mutual relation for the propagation of their kind; since here we can always ask, Why must such a pair exist? The answer is: This pair first constitutes an *organising* whole, though not an organised whole in a single body."

Similarly the conception of external purposiveness is useful as a principle of synthesis in tracing the development of plants and animals in relation to their environment. The biologist uses the conception in studying the adaptation of the eye to the properties of light, of the teeth of various animals to their varying kinds of food, of the organs of locomotion to the varying modes of traversing space and its obstacles. He uses it again in the study of animal instincts, *e.g.*, the building instincts of wasps, bees, birds, beavers; or again the instincts of concealment amid their surroundings found in so many insects, animals, and plants. But in all such cases he takes for the end subserved the preservation of the life and health of the animal or plant in question.

But when we extend the conception of external cause to nature as a whole, we find as many destructive as preservative agencies. The waste of nature staggers the most down-right optimist. War, pestilence and famine are as rife among animals and plants as among men; and even if we grant—what is a very large assumption—that in the

¹ § 67.

² § 82.

struggle for existence not only the *fittest* but the *best* always survive and that the progress is ever upwards, still this progress is bought at a most frightful cost of pain, suffering and death, not merely of individuals, but of whole races of plants and animals. Such problems however are moral and metaphysical and have nothing to do with the logic of final causes in the biological sciences. In these sciences the conception of final cause, in the external applications just briefly indicated, is as much a methodological postulate as in its internal applications: and its justification depends here also solely upon its utility. Here also its use is analogical—drawn from our conscious subordination of means to ends in our voluntary actions; and in using it the biologist reasons as if Nature were an intelligent agent consciously selecting adequate means to preconceived ends. At the same time he is or should be well aware of the limitations to its legitimate use. He uses it to reduce to unity the manifold facts, observed through sense perception, of plant and animal life, and for the purposes of his science he need not postulate that Nature is an intelligent cause in the same sense as he knows himself to be intelligent, nor yet that Nature preconceives her ends in idea, which she purposes to make real in fact, in the same way that he himself proceeds in his own voluntary actions. His science does not need such assumptions, and if made, they produce confusion and illusion; and for this reason biology will have none of them, and rightly so.

But even the biologist is a man, and every man, we know, is a metaphysician. So what are mere postulates to the biologist become the gravest problems to the metaphysician. The latter asks, how are they possible? what do they imply? and Kant himself in an appendix to the *Kritik of the Judgment* goes far to propound a solution, though he never worked out his ideas.

Kant's starting point is the necessity of the conception of final cause in the sciences of organic life.¹ "(1) For the reflective judgment," he says, "it is therefore quite a correct fundamental proposition, that for that connexion of things according to final causes which is so plain, there *must be thought* a causality distinct from that of mechanism, *viz.*, that of an (intelligent) cause of the world acting in accordance with purposes, but (2) for the *determinant* judgment this would be a hasty and unprovable proposition. In the first case it is a mere maxim of the judgment, wherein

¹ § 71.

the concept of that causality is a mere 'idea,' to which we by no means undertake to concede reality; but which we use as a guide to reflexion, which remains thereby always open to all *mechanical* grounds of explanation and does not withdraw out of the world of 'sense'. In the second case the proposition would be an objective principle prescribed by *reason*, to which the determinant judgment must subject itself, whereby however it withdraws beyond the world of *sense* into the transcendent and perhaps is led into error."

As to the existence of final causes in nature, Kant points out, four views have been prevalent in philosophy: two he calls Idealist, and two Realist; the two former denying and the two latter admitting their real existence.

(1) The Idealists explain final causes away as an illusion: either (a), like Democritus and Epicurus, reducing everything to mechanical causation without attempting to account for the delusion; or (b), like Spinoza, reducing final purposiveness to fatality, and explaining the illusion of mutual adaptation in things as due to the unity of the substratum of all natural things.

(2) The Realists are either (a) Hylozoists who explain the purposes in Nature—upon the analogy of a faculty acting with design—by the life of matter, a world-soul, *anima mundi*; or (b) Theists, who explain them as derived from an intelligent Being, a God, who produces them with design. Kant, as we shall see, holds to the last view as a matter of faith, but denies that it is a provable proposition.¹ It is not provable because "the concept of a causality of nature according to the rule of purposes, still more of a Being such as cannot be given us in experience (*i.e.*, through sense-perception)—a Being who according to the rule of purposes is cause of Nature—though it is thinkable without contradiction, is not to be dogmatically asserted: for it is neither derived from experience nor necessary (*i.e.*, like causality) to the possibility of experience". It is not however a matter of blind faith, but of a faith based on a critical analysis of scientific method: "We cannot," says Kant,² "otherwise think and make comprehensible the purposiveness which must lie at the bottom of our knowledge of the inner possibility of many natural things than by representing it and the world in general as a product of an intelligent cause (a God)."

So far and no farther Kant's critical analysis carries him; but after all he does not rest content with his own conclusion. Reason, as distinct from understanding, demands more than

¹ § 74.

² § 75.

a mere reflective principle of judgment; and Kant attempts to satisfy these demands by admitting the possibility—in the sense of implying no inherent contradiction—both of an intelligent cause of Nature and of a supreme end of Nature. The former is God, the second is man. How then does Kant arrive at making man the supreme end of Nature?

As a natural organism Kant is never weary of pointing out that man is no more the end of nature than any other organism. "Nature," he says,¹ "has not taken him for her special darling and favoured him with blessings above all animals. Rather, in her destructive operations—plague, hunger, perils of waters, frost, assaults of other animals great and small, etc.—in these things she has spared him as little as any other animal. . . . Man is then always only a link in the chain of natural purposes—is a means for the maintenance of purposiveness in the mechanism of the remaining links."

How then, once more we ask him, is he Nature's supreme end? "As the only being on earth," Kant answers, "which has an understanding and consequently a faculty of setting arbitrary purposes before itself,² he is certainly entitled to be the lord of Nature; and if Nature be regarded as a teleological system, he is by his destination the ultimate purpose of Nature. But this is *subject to the condition* of his having an understanding and the will to give to it and to himself such a reference to purposes as can be self-sufficient *independently* of Nature, and consequently can be a final purpose; which final purpose however must not be sought in Nature itself."

Obviously man's happiness is not the supreme end of Nature: for "the value of life³ for us, if we estimate it by that which *we enjoy* (by the natural end of all our desires which is happiness), is easy to reckon. It is less than nothing." But there is another supreme end possible—man's culture and moral discipline; and from this point of view we can regard Nature as a means to man as its end, and we can see "what Nature can do for man to prepare him for that which he must do for himself in order to be the final end".⁴

From the point of view of *culture* Nature tends to develop man's power of setting ends to himself and his capacity to make out of his life an ordered whole, by putting him in war and competition with his fellow-men—strenuous conditions which impel him to self-reliance and inventive-

¹ § 83.

² § 83.

³ § 83, note.

⁴ § 83.

ness.¹ Thus, says Kant,² "this splendid misery is bound up with the development of the natural capacities of the human race, and the purpose of Nature itself, although not our purpose (*i.e.*, happiness), is attained." From the point of view of discipline Nature only indirectly helps to make man "receptive of higher purposes than she can herself supply, and to free his will from the despotism of desires through the experience which he gains of the benefits of self-mastery and the evils entailed by the loose indulgence of his natural inclinations"³. It is then not as a natural, but only "as a moral, being that man can be the final purpose of creation".⁴ Why? Because, says Kant, in him alone we find "teleological causality," *viz.*, he alone sets up ends before himself; and because "man alone represents the law according to which he has to determine purposes for himself (the moral law), as unconditioned and independent of all natural conditions".⁵ "If now things of the world, as beings dependent in their existence, need a supreme cause acting according to purposes, man is the supreme end of creation; since without him there would be no ultimate point in Nature to which the chain of subordinate ends could be attached. Only in man and only in him as subject of morality do we meet with unconditioned legislation in respect of purposes, which therefore alone renders him capable of being a final end or purpose, to which the whole of Nature is teleologically subordinated."⁶

Here Kant leaves the question of man as the supreme end of Nature to pass to the question of the intelligent *cause* of Nature.

Physical teleology, according to Kant, can never become a physico-theology, though it is of great value as a proædeutic to theology. At most it can only⁷ "justify the concept of an intelligent world-cause, as a *subjective* concept (only available for the constitution of our theoretical faculty) of the possibility of things that we can make intelligible to ourselves according to purposes; but it cannot determine this concept further; and it cannot determine this concept further, because the purposive reference in physical teleology is and must be always considered only as conditioned *in* Nature, and it consequently cannot inquire into the purpose for which Nature itself exists (for which the ground must be sought *outside* Nature). Physical teleology does indeed interpret natural purposes according

¹ Caird, *Kant*, ii, p. 501.

² § 83.

³ § 83.

⁴ § 84, note.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ § 85.

to the analogy of our own voluntary activities ; but as such, it cannot tell us whether the agent is really *intelligent*, or *perfect*, or even whether it is *one*.¹ On the contrary, with all our knowledge of Nature it remains quite undecided whether the supreme cause is an all-wise and all-moral God or only an "understanding determined by the mere necessity of its nature to the production of certain forms (according to the analogy of what we call the *art-instinct* in animals)".¹

The question therefore can only be solved by moral theology. Only as a moral being, Kant has already shown us, can man be the final end of nature.² "A good will is that whereby alone his being can have an absolute worth, and in reference to which the being of the world can have a final purpose." But "such realisation of the supreme end through morality"—to quote Dr. Caird's³ summary of Kant's argument—"is no *natural* sequence of effect or cause; for there is nothing in the connexion of physical causes that has any relation to such an end. We are forced therefore by the same *moral* necessity which makes us set before us such an end, to postulate *outside* of Nature a Cause that determines nature so as finally to secure this result; and from this follows necessarily the idea of an all-wise, all-powerful, all-righteous, all-merciful God." We have a "pure moral need for the existence of such a Being; and our moral needs differ from physical needs in that they have an *absolute* claim to satisfaction".

The existence of such a Deity is therefore, not a theoretical, but a *practical* postulate.⁴ This postulate compels us to think of God "as a rational Being, who is guided by the idea of an end and who uses Nature as means to it"; but this conception rests on an imperfect analogy: such separation of means and ends holds only from a human point of view. For "though⁵ in us morally practical reason is essentially different in its principles from technically practical reason, we cannot assume that it must be so likewise in the supreme World-Cause, or that the divine intelligence, in subordinating nature to the final end, needs to exert a special kind of causality, different from that which it exerts in producing those natural things which are ends to themselves. While therefore we have in our own final purpose a *moral ground* for assuming a final purpose of creation as an effect, we have not in the same sense a *moral ground* for assuming a Moral Being as the source of creation. All that we can say is that, con-

¹ § 85, end.

² § 86.

³ Caird, *Kant*, ii., 504.

⁴ Cp. Caird, *ibid.*, p. 505.

⁵ § 88, p. 387.

sistently with the nature of our intelligence, we cannot make intelligible to ourselves the possibility of such an adaptation of Nature to the moral law and its object as is involved in the final end which the moral law commands us to aim at—except by assuming the existence of a Creator and Governor of the world, who is a moral legislator.

Thus for Kant there is no theoretical or scientific proof of the existence of a moral Deity—not even a working hypothesis: for a scientific hypothesis must at least be certain of the possibility of a given phenomenon, *i.e.* as a possible object of sense perception. The being of God is a matter of *faith*, but of faith as grounded in our reason as necessary for its self-determined ends. And for Kant moral necessity has always an *absolute* claim to which theoretical reason can make no pretence.

No philosopher has really done more than Kant to prove the truth of the maxim that the sciences are special but philosophy is general; and yet at the same time he was so steeped in the psychology of separate faculties, that his philosophy to the end remained a sort of system of watertight compartments with no channel of communication from one to the other. He so rigidly distinguishes between sense, understanding and reason, between the subject and the object, the *a priori* and the *a posteriori*, the theoretical, practical, and æsthetic, the necessary and universal as against the contingent and particular, that he never succeeds in bringing them together again, although the whole tendency of his teaching is to show that such distinctions are not ultimate, and that the real business of philosophy is to discover a principle of unity whereby to overcome them.

Science, it has been well said, must treat the world of objects as self-subsistent in abstraction from the knowing subject. Philosophy must start from the ultimate fact of the duality of subject and object in the unity of experience and reinterpret the lessons of the sciences, of psychology, of ethics, of religion in their relations to the thinking and willing subject. It cannot limit, as Kant always tends to do, experience to the sphere of sense-perceptions; but it must recognise that in all departments of human activity and knowledge, in mathematics, in the natural sciences, in psychology, ethics, sociology, and religion, practical interest is an essential element, and that in all experience alike the two factors are present, *viz.*, subject and object: and that everywhere alike consistency of all the elements with the whole and with each other—the elements both of knowledge and of practice

—is the only and the ultimate test of truth. The fundamental assumption of all investigation is that the object, in whatever sphere it may be, is intelligible, and from this it follows that so far as it is intelligible, just so far is it an object made by mental construction. Even mathematics is no exception.¹ "Exact reasoning" (in Mathematics), says Mr. Peirce, "is a process of experiment performed upon an artificial object, an object made indeed by the mathematician, but observed by him just as truly as a star or as a physiological process is observed by the student of another science, experimented upon just as truly as one experiments in a laboratory."² Mr. Schiller, too, in company with other well-known logicians, has recently tried to show us that axioms and other so-called necessary truths are in their origin postulates and working hypotheses which experience has shown us to work well, and that their origin is to be found in our own practical needs in dealing with the world of objects around us. Man is the child of Nature: and he can only know Nature in so far as he can see himself in her, and only master Nature in so far as he can make her subserve and conform to his practical needs. His most fundamental ideas, space, time, number, identity, similarity, causality, etc., all have their origin in the contact of his mind with other minds and natural objects, and he extends their dominion and believes in their validity just so far as they are verified in his experience. Some of them are exact, like number and measure, and as such they specially command themselves to the man of science: others do not admit of this exact expression and so are regarded as of less value in science, and *final cause* is a conception of the latter class. Its origin in reflexion upon the conscious process of man's voluntary actions is obvious. By analogy man extended it to the acts of animals and plants, even to inorganic things, and to the universe as a whole: in some cases he found the conception work well as an hypothesis, in others ill; but as in the case of other conceptions, so here experience is the only test of its validity and of the extent of its validity. Hence we are now in a better position than were Bacon, Spinoza, and Kant to estimate its value; for we have seen it applied with the most successful results in the biological sciences, which were practically non-existent in the lifetime of those philosophers. It is true that the biologist in investigating the adaptation of organism to environment and of environment to organism

¹ Quoted by Prof. Royce, *The World and the Individual*, i, 254.

² Cp. Sturt's *Personal Idealism*, p. 50 ff.

by the process of natural selection does not stop or need to ask, whether such adaptation is the result of conscious design, and that he speaks of the variations as due to "*chance*," i.e., to causes of which he knows nothing or little. But to the philosopher this modest limitation of the biological postulate makes but little difference. As to the origin of the conception in the conscious human will he has no doubt whatever, so that the success of the scientist's application of final cause is for him a most important piece of evidence for the unity of the active principle at work in Nature and in man. In Kantian language it shows him that final cause is no mere reflective judgment, no mere illusory hypothesis, but a constituent element in Nature, just as much as the principle of causality. And so it is with all the principles which the human intelligence uses successfully to make the world of nature intelligible to itself. As Dr. Caird puts it,¹ "Thus we are led to think of one principle underlying all differences, and which, through the difference and apparent external determination of different material elements by each other, is working towards the realisation of itself". Man's science, man's philosophy, man's religion—all are anthropomorphic, and rightly so. For the not-self can only exist in relation to the self, so that the extension of knowledge and power over the one element carries with it or rather is identical with the extension of knowledge and power over the other. *Anthropomorphic* philosophy and science must always be: but they must rest not on the transient sense-perceptions of the individual man, but on the rationally constructed experience of the human race.

¹ *Kant*, ii., 541.

V.—THE PSYCHOLOGICAL MEANING OF CLEARNESS.

By I. M. BENTLEY.

Two important questions may be raised respecting the psychological use of the term 'clearness'; the first, how is the concept employed in current systems of psychology? and, the second, what is the relation of clearness to mental analysis and to the general features of consciousness, chiefly attention?

Clearness or some analogous aspect of mental phenomena has long been recognised in psychology and philosophy. Locke, *e.g.*, distinguishes between clear and obscure ideas on the one hand, and distinct and confused ideas on the other. Leibniz uses similar terms to denote the adequacy and the inadequacy of knowledge, Wolff makes clearness an essential feature of attention and Herbart derives it from the conflict of ideas. But it is only within modern times that the concept has been given an important and definite function in psychological systems.

In Wundt's psychology, clearness is brought into connection both with the analysis of mental experience and with the general characterisation of consciousness. All mental contents may be considered, according to Wundt, as magnitudes; either intensive—the simple sensations and feelings—or extensive—the simple groupings of these elements. Intensive magnitudes are of two kinds; qualitative gradation and degree of strength. Extensive magnitudes are, likewise, of two kinds; temporal and spatial distances.

To the two general classes of intensive magnitudes is, now, to be added the magnitude *clearness*.¹ Clearness is intensive because its degrees may be arranged in an intensive series. To the two general classes of extensive magnitudes is, likewise, to be added the magnitude *distinctness*, which represents the *relative* clearness with which one process is set off from other processes. From this analysis, it would seem to follow that clearness is to be classed with quality and intensity as aspects of simple sensations and feelings; distinctness with spatial and temporal distances, as aspects of the simple grouping of sensations and feelings. Clearness would thus be a function of a simple process, distinctness a

¹ *Logik*, Bd. ii., Abth. 2 (1895), 179.

function of a plurality of related elements. We shall see, however, in a moment, that this is not Wundt's final meaning.

As regards the relation of clearness to the general aspects of consciousness, Wundt explains that change of clearness is the objective side of apperception.¹ In other words, that an increase of clearness is the result of bringing into prominence, of setting in relief, a part of consciousness. Increase in distinctness, on the other hand, is the result of the separation of one part from other parts. Both are effects of a relating activity whose function is analysis (*beziehende Analyse*).

Clearness is, then, both a mental magnitude and a function of apperception. There are not, however, two kinds of clearness. There is but one; and this is not an attribute of sensation, as it at first appears to be, but invariably a feature of the apperceptive consciousness.

There is sufficient justification for our statement that Wundt—even while he denominates it a simple magnitude—does not regard clearness as a property of the sensation. In the first place, it does not appear in his discussion of the qualitative analysis into elements.² Again, in the *Grundzüge*,³ clearness is held to be an attribute exclusively of ideas, which can be transferred to sensations only as the latter are considered constituent parts of ideas. Thirdly, clearness is said to differ from intensity of sensation in that intensive change is a change in the sensation itself, while change of clearness is an alteration in its relation to other contents.⁴ An impression, *i.e.*, is apprehended as clearer in relation to other impressions which, by comparison, appear obscured. And, finally, the physiological correlate of clearness is not any specific change in the excitation underlying sensation itself; it is, on the contrary, a process of inhibition proceeding from the apperception centre of the cortex. We must conclude, therefore, that the rubrication of clearness with the mental elements was more or less accidental. It seems to have been made, primarily, for the sake of simplicity of classification.

In defining the relation of clearness to apperception, Wundt implies that apperception is the sole cause of changes in clearness. But apperception is itself dependent upon various external and internal conditions, so that we must ask more explicitly for the ultimate conditions of clearness and of its opposite, unclearness or *obscurity*. For even when we have learned that apperception clears up an obscure quality by bringing it to the focus of consciousness, we must still enquire why the quality was obscure in the first place and why it is more obscure at one time than at another. A partial answer to these questions is to be found in the statement⁵ that clearness is conditioned by two factors; the

¹ *Logik*, Bd. ii., Abth. 2 (1895), p. 286.

² *Ibid.*, p. 196 ff.

³ *Grundzüge*, 4th ed., ii., 272.

⁴ *Ibid.*, 5th ed., i., 323.

⁵ *Ibid.*, 4th ed., ii., 271.

intensity of the apperceived sensation and the acuity of apperception. Apperception is acute, it must be added, when the strain of attention corresponds to the intensity of the impression. So that degree of intensity and expectation—*i.e.*, accommodation of attention—are the two final conditions of clearness. There is, however, a third condition that comes to light in Wundt's account of fusion. The overtones of the simple clang, *e.g.*, are obscured (*verdunkelt*) by fusion. They remain, nevertheless, in consciousness.¹ Their darkening means a failure to find the focus of attention; it arises both from the small intensity of the tones and from their frequent association. Association is, then, a possible condition of clearness or more—negatively—of obscurity.

Wundt's explanation of fusion—in terms of apperception—is highly unsatisfactory. Grave objections may be brought against both his factors. Against the first it should be urged that tones may be equally intensive and still be less clear in combination than in isolation; and, against the second, that the principle of frequency of association has been shown to be inadequate.² Moreover, anticipatory attention, although it does, without doubt, increase the clearness of mental contents, yields now a greater, now a lesser, increment of clearness, according to the nature of the processes which enter into the state of attention. We must conclude, therefore, that Wundt's three factors—intensity, expectant attention and association—do not exhaust the conditions of variations in clearness.

Ebbinghaus uses the term 'vividness' or 'vivacity' (*Lebhaftigkeit*) where Wundt uses 'clearness'. But vividness is, for Ebbinghaus, also a distinguishing mark between sensations and ideas. The idea is not only weaker than the sensation; it is paler, more incorporeal, more shadowy.³ There are, moreover, among ideas themselves, various degrees of liveliness. Galton's classification of imagery, *e.g.*, is a classification in terms of liveliness or vivacity.

In order to an understanding of the relation obtaining between vividness and attention, we must note our author's close association of the terms 'fusion,' 'inhibition' and 'attention'. As Wundt relates fusion and apperception, so does Ebbinghaus relate fusion and attention. For the latter writer, a fusion is a 'total-impression' which is not analysed by the attention. Not fusion alone, but also attention and inhibition follow from the general law of the limitations of consciousness. As a result of a psychophysical process of inhibition among simultaneous excitations, parts of consciousness stand out in vivid relief (*lebhaftes Hervortreten*), while others are suppressed and appear only as an unanalysed background to the vivid and analysed contents. This background is a fused mass, without parts.⁴ It is, therefore, impossible for Ebbinghaus

¹ *Grundzüge*, 5th ed., ii., 121.

² See C. Stumpf, *Tonpsychologie*, ii., 208 ff.

³ *Psychologie*, i., 524.

⁴ *Ibid.*, p. 573.

to concede either clearness or vividness to the members of a fusion. Clearness can be predicated only of ideas that are analysed out of the 'total-impression'; *i.e.*, ideas that are attended to. All other contents are so completely inhibited as to lose their individual quality.

When we look more closely at Ebbinghaus' doctrine of attention, we find ample justification for our statement that his 'vivacity' is practically identical with Wundt's 'clearness'. Mental contents, says Ebbinghaus, suffer a twofold change upon entering the state of attention; they impress themselves upon the mind with greater energy—they become more lively, they stand out from other contents—and their various attributes and parts appear in greater distinctness and in greater isolation. That is to say; in attention, processes are more vivid (or clear) and more distinct. It follows that the determinants of attention—intensity, feeling-tone, repetition and the presence of similar processes (according to Ebbinghaus)—are also the determinants of clearness.

Münsterberg distinguishes between clearness and independence—he uses synonymously the terms *Klarheit*, *Deutlichkeit* and *Selbständigkeit*—and vividness (*Lebhaftigkeit*).¹ Clearness is one of the characteristics of 'content-qualities'; the other two being 'kind' and 'strength'. Content-qualities include 'material-qualities' and 'form-qualities'. Clearness of material-qualities is illustrated by a fusion of tones. A tone is clearer, more independent, when sounded with its seventh than when sounded with its octave. Similarly, form-qualities fuse among themselves and thereby alter their independence (*Gestaltselfständigkeit*). Value-qualities, on the other hand, are not capable of the threefold variation—kind, strength and independence—but are classified as vividness-values, feeling-values, direction-values, etc. These values are the mental representatives of the relation of the subject to the object. Degree of vividness corresponds, now, to the act of attention. It is identical neither with clearness nor with strength. An impression that is weak and unclear may become more vivid under attention without changing either its clearness or its intensity.²

Although vividness, independence and intensity are very closely related in Münsterberg's system, we find, in the section devoted to the *Urelemente*,³ that the last two are derivatives of vividness. The primitive elements possess vividness but not intensity or independence. Both of these latter characteristics arise under fusion of the elements by their interaction and mutual inhibition. The clearness (independence) of a sensation depends upon the vividness of its primitive elements; for, the less vivid elements suffer suppression, inhibition, extinction, in the presence of other, more vivid, elements. It is this loss in *Urelemente*, then, that makes the difference between a sensation in fusion and the same sensation—*i.e.*, the same 'kind,' *Art*—in isolation. Clearness depends, therefore, upon the vivid-

¹ *Psychologie*, I., 285.

² *Ibid.*, p. 292.

³ *Ibid.*, p. 369 ff.

ness of the ultimate elements, and vividness corresponds to an act of the attention. Thus we come, by way of the circuitous path of hypothesis, back to Wundt's position. This path is not wanting in its own peculiar difficulties. In the first place, it is not made entirely plain how degree of clearness can be independent of attention—as Münsterberg contends—since clearness is a function of vividness and vividness derives from attention. Again, if the primitive elements inhibit each other, in the fusion of sensations, what shall be said of their mutual relations within one and the same sensation? Do they inhibit each other here also? There is no help for it. Since they are no more and no less similar in different sensations than in a single sensation, and since there is no 'peculiar affinity' in fusion, they must suppress one another under all circumstances. But from this it follows that the sensation is itself a product of fusion and is, therefore, entitled to a clearness attribute quite as much when considered by itself as when considered as a member of a complex. This is not in accord with Münsterberg's statement¹ that independence, clearness, becomes 'complete' when the sensation stands by itself. Once more; when we have traced clearness to a single sensation—as we are bound to do if we accept the author's assumption of the interaction of the primitive elements—what becomes of the distinction between vividness and clearness? It disappears. Clearness is seen to be merely a collective vividness; the vividness of a group of vividnesses; the product of their internece warfare. Each element either maintains itself or is annihilated according to its peculiar vividness, and the surviving members contribute to the clearness of the whole.

I have taken seriously Münsterberg's speculations on the *Urelemente* only because they promised to furnish some clue to the relation of our two terms, clearness and vividness. Quite apart from obvious objections to the major hypothesis on which they rest, the speculations raise more difficulties than they settle.

Kuelpe uses interchangeably the words 'clearness' and 'distinctness'. He means by them "simply the relatively most favourable apprehension of an impression, as expressed in a relative maximum of its discriminability from other contents and of the liability of reproduction of its attributes".² This description of clearness is valuable because it suggests the possibility of quantitative determination of clearness through its effect upon the discriminating sensibility. Kuelpe adds, moreover, a criterion for what may be called the lower limit of unclearness or obscurity. Part-contents may be present in a total-impression, he contends, though they are unnoticed.³ They are present if the total-impression suffers

¹ *Psychologie*, p. 285.

² *Outlines of Psychology*, 424-425; cf. *Zeitschr. für Philos.*, etc., cx. (1897), 34.

³ Cf. H. Eckener (*Philos. Stud.*, viii., 365) for experimental instances of the influence upon consciousness of obscure ideas.

change when the part-contents are subtracted from or added to the experience.¹

For Stumpf,² increase in distinctness is the prime result of analysis, and analysis is the essential function of attention. Whatever affects analysis—*e.g.*, the degree of fusion of simultaneous tones—contributes also to the distinctness or the indistinctness of perception.

Clearness, in James's psychology, is a product of "intellectual discrimination". It means—so far as attention produces it—"distinction from other things and internal analysis or subdivision".³ It is, however, necessary to notice that James does not conceive analysis as a mere process of clarification. It works a qualitative as well as a quantitative change in consciousness. An analysed consciousness is different in *kind*, not merely different in degree, from an unanalysed consciousness. It follows that one cannot speak of *degrees* of clearness. A consciousness is just itself; if it becomes more vivid or more clear or more distinct, it is *ipso facto* a new consciousness. One consciousness may represent an *object* more fully or more clearly than another consciousness; but a single consciousness cannot be, at one time, clear and, at another, obscure. The same view is represented by Lipps⁴ and later by Stout,⁵ while its truth is denied by Wundt, Helmholtz, Lotze, Kuelpe, Titchener, Stumpf, Münsterberg and Ebbinghaus. The contradiction in the two points of view may be overcome if we admit, on the one hand, that the *state* or *condition* of consciousness *does* change with varying degrees of clearness and obscurity, and, on the other hand, that, as a rule, the clear consciousness is more complex than the unclear simply because one of the concomitants of an increase in clearness is a heightened productivity, an arousal of new associations. But, if we examine any *particular* process or group of processes, we observe no qualitative change that is coincident with alteration in clearness.

Let us see, now, what the literature nets us. Wundt distinguishes clearness and distinctness as mental magnitudes. He also attempts to carry over the distinction to his treatment of attention and apperception. Degree of clearness is, he says, the prominence of a particular quality; distinctness is its separateness from other qualities.⁶ Clearness refers to the constitution of an idea itself; distinctness to its relation to other ideas.⁷ But, in

¹ By removal of 'part-contents,' Kuelpe can only mean what Helmholtz had said more explicitly before him; namely, the suppression of a part of the *external cause* or *condition* of the total-impression. Weak overtones would be in consciousness, *e.g.*, when, and so long as, the removal of their stimuli produced an effect upon consciousness.

² *Tonpsychologie*, ii., 278, 287-288. ³ *Psychology*, i., 426.

⁴ *Grundtatsachen des Seelenlebens* (1883), 31-32, 42-44.

⁵ *Analytic Psychology* (1896), i., 246 f.

⁶ *Logik*, p. 286.
⁷ *Grundzüge*, 4th ed., ii., 271. Sully makes a similar distinction, *Human Mind*, i., 275.

another place,¹ increase in clearness is said to be—as against increase in intensity—a change in the relation between contents. One part of consciousness is apprehended as clearer than another which, in comparison, appears to be obscured. This looks like a contradiction; but what Wundt means is that, in becoming clear, conscious qualities come to their full rights through the positive inhibition of rivals. The physiology of this process, he has given in some detail. Inhibition and the resulting enhancement of clearness are the essential features of apperception. Changes in distinctness seem, on the other hand, to be a more or less fortuitous accompaniment of apperception. They consist, it is evident, in the sharpening of outlines, in the setting off of object from object.

Barring differences in terminology, Ebbinghaus' account of clearness is not essentially different from Wundt's. He gives as the conditions of clearness intensity, feeling-tone, repetition and the presence of similar processes; against Wundt's intensity, expectation and association. Repetition comes practically to the same thing as Wundt's association and 'the presence of similar processes' coincides, at least roughly, with his expectation. This leaves us with one new factor, feeling-tone. Münsterberg dismisses the difference between clearness and distinctness, both of which he identifies with independence as a characteristic of content-qualities. Independence rests, first, upon the nature of qualities brought together in consciousness, but, finally, upon vividness, which is a function of the attention. Münsterberg's most important contribution to the subject is his emphasis upon the relation of clearness to the qualitative nature of mental contents. Kuelpe suggests a possible means of measuring clearness and also a criterion for the lower limit of obscurity. We are indebted to Stumpf for the important statement that whatever affects analysis affects clearness (he uses the term distinctness) and also for a thorough investigation of the conditions, central and peripheral, underlying analysis in the special province of auditory complexes. Finally, the contention—sustained by Lipps, James and Stout—that degrees of clearness do not exist serves as a caution against the confusion of the broadening and deepening of consciousness in the attentive state with alteration of the clearness of specific contents.

The literature suggests many questions regarding the relation of clearness to attention, to sensation, to fusion, to inhibition, etc. Only two of these questions need be considered here. They refer to the relation which clearness bears to the various types of mental complexes, and to the attributive nature of clearness.

Concerning the relation of clearness to mental complexes, it is instructive to notice that both the terms 'clearness' and 'distinctness' were suggested by visual perception. We see *clearly* when

¹ *Grundzüge*, 5th ed., i., 323.

the eyes are properly adjusted and when objects reflect sufficient light; we see *distinctly* when we are in a condition accurately to distinguish various objects.¹ Distinctness, at least in visual space perception, means, in the first place, sharpness of contour. Eliminate borders, lines of demarcation, and the distinctness of adjacent objects disappears. The colours of the spectrum are clear, but they are not distinct—except as they are distinct from the surrounding white light. They merge gradually into each other.² This holds, in general, for spatial perceptions. But distinctness is also the obverse side of the unity of a mental complex. The compactness, the solidarity of a group of mental processes, makes it a distinct whole. A mass of dissonant tones is not, as a mass, distinct. The individual tones may be clear. They may 'stand out' from each other; but there is no distinctness of the mass. The essential elements in a puzzle-picture may be clear, and each by itself may be distinct—it is, at least usually, sharply defined—but there is no distinctness of the whole until the picture is seen, until it grows together under attention. Here, distinctness is centrally initiated. The same thing happens if we 'hear-out' a 'puzzle-chord' from our dissonant mass of sound. The chord becomes distinct, not because its borders are defined—tones have only temporal borders—but because it is now an unitary whole, with an individuality of its own.

With these instances in mind, we should be able to make some general statement regarding the distinctness and the clearness of contents in the three typical and fundamental formations of mental complexes. In the first type, which includes what we may call *extensive* formations or 'incorporations,'³ qualities are arranged in a spatial pattern. It is evident here that both moments of distinctness—definition and unitariness—come into play. The consciousness that conveys the perception of a picture or of a tree exhibits more or less sharply defined qualitative gradations and, at the same time, an unmistakable unity, both in its structure and in its capacity for arousing associations. In the second type, the *temporal* incorporation, definition and unity are also to be found. Definition

¹ Wundt, *Grundzüge*, 4th ed., ii., 271.

² I assume that adjacent colour-tones are seen simultaneously, not successively.

³ See *Amer. Journal of Psych.*, xiii., 1902, 269 ff. The threefold classification of the text corresponds in general with Wundt's division into 'intensive' and 'extensive' ideas (*op. cit.*, 5th ed., ii., 374) and with Kuelpe's distinction between 'fusion' and 'colligation' (*Psych.*, 276 ff.). I have chosen the term 'incorporation' as a compromise between Meinong's 'consolidation' and Kuelpe's terms. The consolidation concept implies an active process of synthesis and a too radical metamorphosis of the analytic elements of consciousness; 'fusion' is too equivocal, it means too many things; 'colligation' is too colourless and applies rather to the juxtaposition of objects than to the synthesis of mental processes, while 'fusion' and 'colligation' taken together fail to express the common bond between all the simple types of connection.

is the definition of parts in sequence. The parts either overlap or they are sharply set off from one another; and they are either bound together—as in melodic or rhythmic groups—or they fall apart—as in a succession of tones chosen at random. The *qualitative* or third type of incorporation contains neither spatial nor temporal definition. The qualities that form the complex possess the same temporal and spatial coefficients. They neither stand side by side nor before and after each other. They have, then, no apposed borders and, therefore, no definition. They possess, instead, interpenetration. But, though the first moment in distinctness is lacking, the second is not. Qualitative incorporations may be as unitary as either of the other types. An auditory fusion, a taste-smell complex, a tactual formation, possesses a compactness, a wholeness, that sets it off and makes it a distinct unit. It must be observed, however, that the distinctness of qualitative incorporations is more limited than the distinctness of the other types; for the element of interpenetration is always opposed to distinctness. However unitary a qualitative incorporation may be, it tends to merge into other like incorporations. Note fuses with note, chord with chord, harmony with harmony.

It follows from our discussion that, within the field of extensive and temporal incorporations, distinctness is predicable alike of related elements—*e.g.*, adjacent colours or successive pressures—and of related groups—*e.g.*, figures or melodic phrases. Unity belongs, of course, only to groups; but definition is observable as well in the 'boundaries' of simple elements as in the apposition of composite masses.

Let us turn now to clearness. As we found distinctness to be a function of definition and unity, so we shall find clearness to be a function of interpenetration and unity. Definition, which is characteristic of extensive and temporal incorporations, does not seem to affect clearness. Processes may overlap or they may merge gradually into one another and, nevertheless, remain clear, though not distinct. As soon, however, as interpenetration is substituted for lack of definition, clearness is, at once, altered. A tone penetrated by its octave suffers a decided loss in clearness, penetrated by its fifth or major third, it loses less and, by its minor seventh, still less. A voice is clear when its tonal quality is pure, when it is not obscured by noises, or when, by reason of its intensity, its clang-colour or its frequent change of pitch, it stands out from other noises or from accompanying instruments. A colour, likewise, is obscure when it is overlaid by a lustre or a reflection or by another colour with which it does not perfectly 'mix'.

Now what may be said of the clearness of an incorporation as a whole? We found that we could speak of the distinctness of extensive and temporal incorporations, when set in juxtaposition, but that the distinctness of qualitative incorporations is infringed by the fusion of complex with complex. But just where distinctness tends to disappear, clearness appears in all degrees, from maximal

obscurity to maximal obtrusiveness. One chord, *e.g.*, is more or less clear, more or less obscure, according as it interpenetrates with a second or a third chord. We may speak, likewise, of the degree of clearness of extensive and temporal incorporations, considered as units; although these incorporations are lacking in interpenetration. The clearness of a spatial figure or of a melodic phrase may either diminish or increase when set over against another figure or another phrase: diminish when the two figures or the two phrases combine into a larger group; increase when they give rise to antithesis or contrast. In the one case, the new unity retires the minor incorporations, renders them more obscure; in the other, the minor incorporations undergo mutual enhancement and clarification.

I have taken account thus far of the relation of clearness and distinctness only to those mental groups which involve but one type of incorporation. But even if we were to extend our inquiry to complexes which include different types, we should find no necessity for altering our concepts. Let us examine an instance.¹ Suppose one is watching a ringing bell; there appear in consciousness both auditory and visual elements. The auditory elements enter both into qualitative groups (clangs) and temporal groups (rhythical units). The visual elements, likewise, form both an extensive group (contiguous qualities) and temporal groups (successive qualities). Now these four forms of grouping combine to produce an incorporation of the second degree, of whose constituent members we can predicate both clearness and distinctness. The factors that we have found to characterise these two attributes possess exactly the same significance in this heterogeneous complex as in our previous homogeneous complexes. The unity of the several groups is still maintained—although a new unity of the whole supervenes—and definition and interpenetration remain as in the simpler incorporations.

We may summarise as follows our conclusions respecting the clearness and distinctness of our three fundamental incorporations. The essential elements of distinctness are definition and unity. Definition exists both within and between extensive and temporal incorporations. Unity may be predicated of all three types alike. A single qualitative incorporation presents a degree of distinctness by virtue of its unitary character; but between group and group there is, to speak strictly, no distinctness—only clearness. The two elements of clearness are unity and, in its negative aspect, interpenetration. Unity and, therefore, clearness characterise all three kinds of incorporation.

The objection may be raised that since clearness and distinctness

¹ In selecting instances from perception, I have not meant to raise the question of the relation of consciousness to the world of objects. The concepts that I have introduced apply only to conscious contents and are not offered as an explanation of the 'external reference' of perception.

coincide on the side of unity, it is not worth while to distinguish the two concepts. Doubtless we do in every-day life use the terms interchangeably. Nevertheless, they adapt themselves easily and naturally to the important—the essential—difference that obtains between extensive and temporal incorporations, on the one hand, and qualitative incorporations, on the other. This is the writer's justification for maintaining the distinction.

In setting off definition and interpenetration (or, more positively, 'qualitative aloofness') from unity and variety, we have distinguished roughly between the peripheral and external and the central and internal conditions of clearness and distinctness. Definition and aloofness depend, primarily, upon the spatial, temporal and qualitative peculiarities of stimulus; unity and variety, primarily, upon central dispositions and the resulting associations, feelings and habitual reactions. Most discussions have dwelt upon these last-named factors—under the head of attention—to the neglect of the equally important external and peripheral conditions.

One of our two questions remains to be answered. Is clearness an attribute or property of sensations? It is customary to answer the question in the negative,¹ though both Wundt and Münsterberg recognise clearness as one of the 'dimensions' in which sensations move. I do not see how we can avoid the conclusion that a tone or a colour or a pressure possesses a degree of clearness in precisely the same way that it possesses quality and intensity. One and the same sensation is now clear, now obscure; just as it is now weak and now strong.

Let us examine some of the objections to this view. The first objection—that alteration of clearness involves necessarily qualitative change—we have already disposed of. It has not been shown that a simple quality changes its nature when it becomes more clear—however much attention alter the general kaleidoscopic features of consciousness. A more serious objection is that degree of clearness depends upon the juxtaposition of mental elements and upon attention. But the same objection might be urged against intensity, as an attribute of sensation. The intensity of a tone alters when other tonal sensations are added to consciousness—it may even sink to zero—and it alters—at least if it is weak—with attention. Even quality is changed (*e.g.*, simultaneous brightness contrast) by the presence of other qualities.² A third possible objection to considering clearness an attribute would urge that a mental complex has a clearness of its own, a mass-clearness, while every element in the complex retains its own quality and intensity. But this depends upon analysis. If there is no analysis, neither is there a plurality

¹ A notable exception is the view of E. B. Titchener (*Philos. Rev.*, vii, 462) that clearness is an attribute of sensation. M. W. Calkins ranks clearness with intensity, extensivity, etc., as an 'element' of consciousness (*Introduction to Psychology* (1901), 137 ff.).

² Cf. M. F. Washburn, *Philos. Rev.*, xi, 457.

of separate qualities and intensities; and just as soon as analysis brings forth qualities and intensities it brings forth also clearnesses. Each part, as soon as it is a part, stands in its own proper degrees of clearness or obscurity. We may conclude, therefore, that—lacking more positive and more valid objections to the position—clearness is to be ranked with quality and intensity as a characteristic of the simple sensation.

VI.—CRITICAL NOTICES.

Principia Ethica. By GEORGE EDWARD MOORE, Fellow of Trin. Coll., Cambridge. Cambridge: University Press, 1903.

THIS is a book which leaves no doubt of its author's acuteness, boldness and earnestness. In form it is singularly clear and careful, and even an Idealist whom it has not converted will admit that it is highly provocative of thought, and on more than one point of importance propounds true doctrine with remarkable vigour. Beyond a doubt Mr. Moore has unusual gifts as a critic of philosophy; whether he has here shown himself capable of dealing positively with the main burden of a great science is perhaps open to doubt.

"I have tried in this book to distinguish clearly two kinds of question, which moral philosophers have always professed to answer, but which, as I have tried to show, they have almost always confused both with one another and with other questions. These two questions may be expressed, the first in the form: What kind of things ought to exist for their own sakes? the second in the form: What kind of actions ought we to perform? I have tried to show exactly what it is that we ask about a thing, when we ask whether it ought to exist for its own sake, is good in itself, or has intrinsic value; and exactly what it is that we ask about an action, when we ask whether we ought to do it, whether it is a right action or a duty" (Preface, vii.-viii.).

Under further examination, the first of these questions is subdivided; and the three problems thus resulting form the ground-plan of the book.

The first of these problems, "What is the meaning of good?"—the adjective good—is the subject of the first chapter. In dealing with it Mr. Moore advances his conception of "the naturalistic fallacy," which I think he would admit to be the primary contention of his work. To this we shall return directly. On the basis of this conception he then proceeds to discuss certain proposed answers to the second problem, *i.e.* What things are good in themselves? by formulating in successive chapters a hostile criticism of Naturalism (mainly Herbert Spencer's views), Hedonism (Mill and Sidgwick), and Metaphysical Ethics (illustrated mainly from Kant and Green). This takes us rather more than

halfway through the book. We now arrive at the *second* question of the Preface, being the third problem of Ethics as developed in the body of the work, *viz.*, What ought we to do? the author's main point being that answers to it are causal propositions dealing with the means to good, and are strictly speaking impossible to establish. There is therefore nothing to discuss but how far it can be shown that rules propounded by Common Sense are likely to be generally useful; and the ethical primacy of duty and virtue disappear, both being regarded as not necessarily more than means to good, although virtue is capable in some sense of intrinsic value. In the final chapter, entitled the Ideal, he returns to the second problem of Ethics, "What *things* are good or ends in themselves?"—the treatment of which in the central chapters has as yet only produced the denial that pleasure is the sole good—and attempts a positive answer to it. The author insists on his method for answering this question, which is the method of isolation. We must ask what things are such, that if they existed by themselves in absolute isolation we should yet judge their existence to be valuable. The difficulty of such a test, except on Mr. Moore's peculiar principles, would be that everything—say love of beauty—would imply so much beyond itself that the test would seem to pronounce it valueless if really taken *per se*. The conclusion is that by far the most valuable things which we know and can imagine are certain states of consciousness, which may be rightly described as the pleasures of human intercourse and the enjoyment of beautiful objects. And this has been fairly recognised. "What has *not* been recognised is that it"—substantially the proposition contained in the last sentence but one—"is the ultimate and fundamental truth of Moral Philosophy. That it is only for the sake of these things—in order that as much of them as possible may at some time exist—that any one can be justified in performing any public or private duty; that they are the *raison d'être* of virtue; that it is they—these complex wholes *themselves*, and not any constituent or characteristic of them—that form the rational ultimate end of human action and the sole criterion of social progress: these appear to be truths which have been generally overlooked." It is well perhaps to raise these questions in order to make sure that we have not forgotten what virtue means; but I cannot think that against a vital apprehension of what virtue means they have any purchase.

Before approaching the particular arguments a general observation forces itself upon me. The book indicates throughout how strongly the author has been affected by Sidgwick's views.¹ Especially in the general view of Ethics, as shown for example in the crucial point of the acceptance of Casuistry, he follows Sidgwick implicitly. But his revolt against the ascription of

¹ Here I have in a great degree followed Mr. Bradley's pamphlet, *Mr. Sidgwick's Hedonism*, 1877.

exclusive intrinsic value to pleasure—a revolt in which I heartily sympathise with him—cuts away the basis of Sidgwick's general conception. Taking pleasure as the end, we had at least an appearance of a definite abstract principle on which to base the moral code. Pleasure being abandoned, the way indeed seems open to a serious theory of what makes life worth living, which would form the concrete content of Ethical Science. But from the point of view which Mr. Moore inherits there must be no such concrete content, or the general conception vanishes. It is impossible to regard moral science as the analysis of life with reference to its concrete content, and at the same time to conceive it as a code of rules applying to all possible actions. In taking account of the individual as a whole, Ethics is debarred from prescribing rules for his actions. Nothing can do this except an individual who includes him, *i.e.* practically, himself or God. A code of rules can only apply to him if, as Hume would say, we adhere to a general point of view—the colour of his hair, the amount of pleasure he is to have, the need of keeping him in order. Mr. Moore treats the difference between Ethics and Casuistry as one of degree of generality. Casuistry aims at saying what actions would be good wherever they occur. It is the "goal of Ethics"—the elaboration of such judgments as constitute Aristotle's list of virtues,—in a word, the completion of the code. There is no difference in kind, he urges, between more and less general judgments, until you come to "*This action is good,*" and such a judgment has no place either in Ethics or Casuistry. All this, surely, turns upon the conviction that good is a limited and separable quality in things or actions, like solubility or redness, and thus relatively, if not ultimately, isolable. Mr. Moore, I think, has a doctrine of this kind about truth as a property of propositions, which illustrates his position about good. But good, he may reply, is relatively isolable, or how could it have a distinguishable meaning? It cannot be simply all that there is in or about a thing or act. That is true; but it may involve the characteristic of wholeness, and this would be to an idealist the point of view which marks off the philosophical from the natural sciences. I am aware that Mr. Moore does not admit it, and I only point out how fundamental in his doctrine of Ethics this denial is.

It is vital to him then to exclude all philosophical theory of good. Good must be strictly limited. It must be separate from the theory of life, if there is such a theory at all. It must be as simple as pleasure, though, by a noble instinct, the author assigns to pleasure *per se* but low rank as a good.

Now by the doctrine of the Naturalistic fallacy the author is able to exclude all theory of good—all propositions which define the nature of good—what is conveyed by the adjective good as distinct from the substantive (or substantives?) to which it is attached as predicate.

This (or these) it should be mentioned, to which the adjective

good must always truly apply, will for the author constitute "*the good*," and "*the whole of this, whatever it is*," being something different from the adjective itself, will be "*our definition of the good*." So "*the good*" can be defined, though "*good*" cannot; but the definition thus conceived must primarily it would seem be an enumeration, or supposing a single substantive, a designation. Then further, "*this something will have other adjectives, besides 'good,' that will apply to it.* It may be full of pleasure, for example; it may be intelligent; and if these two adjectives are really part of its definition, then it will certainly be true that pleasure and intelligence are good."

But such propositions Mr. Moore insists, and, I imagine, rightly insists, can never amount to a definition of good. It is his point that "*the good*" is definable but "*good*" is not definable. What we have then, as I understand, is a designation (or enumeration) of the substantive (or substantives) which constitute the good, and this is "*our definition of the good*". Then there may be adjectives, besides good, such as "*intelligent*," which apply to this substantive, "*and if these adjectives are really part of its definition, then it will certainly be true that—intelligence is good*". I think there is a confusion here for which I am not responsible. The definition of "*the good*" was clearly at first the assignment of a substantive or substantives to which the predicate good always applies. Now it is suggested that certain *adjectives* may form part of the definition of the good. I am not sure whether (a) substantives called good were to be designated or enumerated; the total of these were to be the "*definition*" of *the good*; their common and peculiar qualities were to be generalised and were to be the secondary (and true) definition of the good. Or (b) whether, though the substantival character of the good is sharply contrasted with the adjective good in the first statement, the real point is that the substantive "*the good*" was from the first to be designated *through adjectives*—it is spoken of as "*that which is good*,"—in which case we have from the first a generalised adjectival definition of "*the good*," without going round through an identification, such as Mr. Moore attempts in his closing chapter, of the separate things which merit the predicate "*good*". The point, I think, is important; in either case indeed a general adjectival definition of "*the good*," which is to remain wholly unsupported by, and uncontributory to, any definition of "*good*," is hard enough to believe in, and seems strictly quite arbitrary. But if we have never made the circuit at all through the identification of substantives or the substantive bearing the predicate good, and generalisation of adjectives therefrom, then it does seem that our adjectival definition of "*that which is good*" can have no basis at all, if not an unacknowledged theory of the nature of "*good*". But as this is strongly denied by the author, the idealist cannot be content with what otherwise might have been practically enough for him, the permission "*to discuss what*

are those other properties belonging to all things which are good". For the connexion being cut between them and the nature of good, the attempt could lead to nothing but an arbitrary enumeration, and any serious inquiry into what makes life worth living would be wholly precluded.

That "good" is indefinable, however, and that the "things which are good" (a favourite expression of Mr. Moore's, singularly irritating to an Idealist) can only be known by Intuition, is Mr. Moore's primary contention. No relevant evidence can be adduced in answer to the question "What things ought to exist for their own sake?" To attempt a definition of good, or what I should call a serious theory of what makes life worth living, is, for him, to commit the Naturalistic Fallacy. This conception we must now try to understand.

The author explains that definition in the only important sense means analysing a whole into distinguishable parts. These parts we can "substitute for it in our minds when thinking about it," *e.g.* the parts of a horse; four legs, head, heart, etc. "We could think how a horse differed from a donkey just as well, just as truly, in this way as now we do, only not so easily; but there is nothing whatsoever which we could so substitute for good; and that is what I mean when I say that good is indefinable."

The point is that any other determination of subject by predicate than analysis into distinguishable parts is denied to be possible for the definitory judgment; and on this basis it is moreover assumed that the aim of definition is *ipso facto* the assignment of a P which is capable of being substituted for an S without loss of meaning. S therefore disappears. It is implied we must suppose, or repeated, in P, or may be abandoned without loss. If you have in mind all the parts of a horse (P) the idea "horse" (S) can be dispensed with. You can work with P alone, and to make such working possible is the nature of true definition. The theory I think is quite false, though in simple cases its falsehood is negligible. It is also in contradiction with Mr. Moore's own view of the judgment, so far as controversially developed farther on. But we are concerned with the use made of it, which is this. The Naturalistic Fallacy is committed when you offer to define any unanalysable S. You are then simply saying that one thing is another, putting something else, often a "natural object," *in place* of the term to be defined. Thus if you offer to "define" good, you are aiming at supplying a P (say "object of desire" or "pleasure") which can be substituted for S (good). You are suggesting that the properties mentioned in your definitory predicates are "not other but absolutely and entirely the same as goodness". In a word, as Goodness cannot be analysed into parts, to try to define it is to sweep it away and put something else in its place. Argument therefore becomes impossible. Different philosophers start from different definitions, just as if one man were to define a triangle as a straight line, and another as a circle, in the sense

that the conception of triangle is surrendered, and replaced in the one case by straight line, in the other by circle. This disabling effect imputed to "definition" is very quaint; for if a man said in an ordinary judgment that a triangle was a circle, I imagine he could soon be disposed of.

Therefore, as I understand the argument, every proposition which aims at determining the nature of S by P being taken as definitory, and definition being taken to imply substitution (which, though never theoretically adequate, is yet roughly workable in case of analysis into parts), we get the doctrine that every such proposition is in effect a substitutive definition, destroying the original S and substituting for it an arbitrary P. This result being meaningless so far as the original S is concerned, we are led to the conclusion that no S, unanalysable into distinct parts, can be further determined in respect of its nature by scientific judgment; in a word, no idea which can be regarded as unique—which I imagine every idea is possible for—can enter into a system of knowledge. This is manifestly false even in Mr. Moore's example of the horse. When we think of it through its parts, of course we think of them as parts of a horse, the point of view contributed by S. It is true that roughly we may take P as a substitute for S, but strictly it would be incomplete apart from the single point of view of the whole given in S and further determined in the analysis P. More strangely still, Mr. Moore pleads almost pathetically for the right view, which I should imagine every one accepts as obvious, on pages 13 and 14, having nothing to oppose him but his own extraordinary idea that a judgment is not a judgment when it is a definition. In this energetic plea he actually maintains that it would be absolutely meaningless to say that oranges were yellow unless yellow were absolutely indefinable. He means, surely, unless yellow were unique and *different* from an orange. Is it meaningless to say that an orange is round, or is round indefinable?

The outcome of the whole doctrine is just this, that good having, like every distinguishable thing, a single aspect, which is peculiar and unique in experience, can have no propositions of scientific value made about it at all. The determination of one aspect by "others," which for an Idealist is the obvious foundation of all science, and even for Mr. Moore presents itself as the natural interpretation of every-day judgments, ceases to be possible when we come to definition, *i.e.*, as I understand, to experience of what makes a thing what it is. Yellow, for instance, is indefinable; you can say "other" things about it, but you cannot define *it*. Knowledge therefore we must suppose cannot deal with it, and it cannot be, strictly, anything more for one perception or intelligence than for another. If Ruskin says yellow is the foundation of all good colour, this we must suppose is not a judgment which can be developed out of its nature, but somehow extraneous, and not affecting it. Good is like yellow. It is unique, and simple. It cannot

be determined or its nature developed by any proposition about what makes life worth living.

Then the work is done. A false doctrine of judgment, ultimately I presume a doctrine of non-essentiality of relations, maintained in face of the author's own better insight, has effectually gagged the organ of ethical science. At the point where the main argument of the Republic and Philebus would be approached, that is, at the definition of good as the object of desire, the doctrine of the naturalistic fallacy is invoked to bar the road by showing that *about good* nothing significant can be said at all.

Yet the proposition that good is the object of desire seems to me to be significant, though I am far from maintaining that it is adequate. It appears to have a meaning as an ordinary synthetic judgment, and it is hard to suppose that to call it a definition can destroy its sense. We understand by it that good, a feature in experience *prima facie* unique and indefinite, as every feature in experience must be until more fully and determinately experienced, is asserted to display its nature more explicitly in certain further relations. A sentence is indeed cited from Green to show that he thought of good as having no universal character except the defining predicate—not even, it is urged, the feature of goodness. This is just the common way of speaking which Mr. Moore himself employs when he speaks as if the parts of a horse could be substituted for the subject "horse" without the knowledge that that of which they are parts is a horse. We presuppose the synthetic nature of judgment, and take S as read into P and qualifying it, as in truth it does.

The idea of the Naturalistic Fallacy is applied in the criticism of Spencer's Evolutionism, of Hedonism and of Metaphysical Ethics—the fallacy in the last case being taken as the same in kind, though the thing identified with the good is not a natural object. I will comment upon its application in the latter case. Metaphysical Ethics are characterised by asserting that that which would be perfectly good has some characteristic possessed by a supersensible reality. Besides saying that in fact this is so, which might be true, they imply "that this ethical proposition follows from some proposition which is metaphysical; that the question 'What is real?' has some logical bearing upon the question 'What is good?'" And this is to commit the Naturalistic Fallacy." This point the author takes as proved in chapter i. (in the argument above referred to) and in the later discussion he confines himself to setting out the reason of the error, and other objections to the bearing of Metaphysic upon Ethics, *e.g.*, the difficulty about realising in time what is itself eternal. Now what I object to is that by this method the central reasonings of great thinkers are never allowed to be referred to. For instance, let us take the connexion of the real and the good. Plato has argued in a way which I may represent roughly (for every one knows it) as follows. Nothing can have a nature, can determin-

ately *be*—the difference between being and existence on which Mr. Moore insists is wholly beside the point—except in so far as it partakes of a characteristic which may be called logical stability. This has primarily nothing to do with being thought; it belongs to being as such. This characteristic Plato connects with the nature of good. For good, whatever else it may be, is something which *is*, in the highest sense of logical stability, and therefore, if such as to be affirmed, possessed and enjoyed, is so in the highest degree. The connecting link between it and reality is logical stability. It is an error to confuse this with the bare fact of existing in or of being possessed by a consciousness. Consciousness may be the only thing which has logical stability, but that comes later in the inference. The argument can be pushed much farther, through all the sides of experience, but for an illustration this is enough. Now Plato's views, like any other, are of course open to be controverted and rejected. But to rule out of consideration so familiar and so important an argument upon an interpretation (even if not a misinterpretation) of the nature of the definitive judgment, seems to me I confess an abuse of ingenuity. And I do not believe that any terms are undefinable, except by the accident of our ignorance.

There is undoubtedly something attractive and stimulating in the novelty of Mr. Moore's attack; there is also something genuinely high-minded in his devotion to his subject, in the tendency of his ethical estimates, and in his carelessness of orthodoxy. It is well moreover, I think, to have insisted on the question What ought to exist for its own sake? or What has intrinsic value? instead of assuming *ab initio* that the subject-matter of ethics is human conduct. The doctrine of organic membership is always the better for being overhauled, though Mr. Moore's criticisms do not seem to me to make any impression on it, resting as they do on the non-modifiability of subjects by relations.

I selected for comment the argument which seemed most original, and on which, as I thought, Mr. Moore himself laid the greatest stress. The criticisms of Mill and Sidgwick are bright and felicitous, though not altogether original. I believe Mr. Moore to have a real vocation as a critic in the sense of a free lance who will make the orthodox reflect and reconsider. But, so far as I can see, he has hampered himself with ideas no less dogmatic than those of the most hide-bound orthodoxy; and he is not yet therefore a critic in the true sense, a critic who can take the standpoint of that which he criticises.

B. BOSANQUET.

Humanism: Philosophical Essays. By F. C. S. SCHILLER, M.A., Fellow and Tutor of Corpus Christi College, Oxford. London and New York: Macmillan & Co., 1903.

THE growing number of those who are interested in seeing the new philosophical movement develop and declare itself will be glad of this collection of essays. It is true that, as Mr. Schiller admits and regrets, the book is not a systematic treatise, but it is chiefly his opponents who at the present stage will complain of that. No doubt a systematic treatise would offer more opportunities to the fault-finder, but it might easily also be less alive and stirring. After all, the inevitably hostile party are not the only people to be considered. From another point of view the chief matter for regret is that the essay on Axioms as Postulates could not also have been included here.

There are fifteen essays, besides a long introductory Preface. Though some have been written specially for this volume, most of them are articles reprinted, with additions and corrections, from *MIND*, the *Philosophical Review*, the *Journal of Ethics*, and other periodicals. They range in date from 1892 to the present time, and ostensibly they range a good deal in subject. But it is hardly possible, for any one who has a far-reaching philosophical theory so much at heart as Mr. Schiller, to avoid applying it even when writing on (e.g.) the character of Mephistopheles or of non-Euclidean Space; and interesting glimpses of the application of his views are to be found throughout. I will therefore keep to the subject named in the title, even though it does not exactly cover all the contents of the book.

As is natural with a far-reaching theory which is still taking shape, the essence of 'Humanism' is not quite easy to find. Its difference from what has hitherto been known by the unattractive name of Pragmatism is that the latter is (p. xxi) only the application of Humanism to the theory of knowledge. Another way of putting this seems to be that Humanism is based upon Pragmatism but extends beyond it; or is the application of the Pragmatist method to all philosophical questions. And since, on Pragmatist principles, all meaning consists in application, and a doctrine is therefore related to its consequences merely as a less explained to a more explained statement, the important question here is not how Pragmatism and Humanism shall be defined against each other, but what are the consequences of adopting Mr. Schiller's view. The present book helps us to see clearly some of them, while it leaves others rather uncertainly suggested.

There is no long step between recognising that all meaning consists in application, and recognising the thorough-going purposive character of mental life,—recognising that the distinction between real and unreal, or true and false, is meaningless except with reference to some purpose for which the judgment is made; that the only criticism to which the results of our experience are

open is that which comes through their actual use ; and that there can be no such thing (except relatively) as 'pure' reason, or an intellectual function operating in complete independence of practical applications. So far we are on safe ground—even if also rather dry ground—and several of the reforms which Mr. Schiller indicates as the future work of Humanism seem fully attainable from this position without any aid from the dangerous or difficult doctrine about the dependence of truth on the will to believe. It is this latter element in Humanism which one would like to see more definitely limited and explained.

We must bear in mind that the general problem as conceived by Mr. Schiller (p. 6) is that of finding a middle way between Irrationalism and Intellectualism. His remark that if we were forced to choose between them the former would have to be preferred seems to show that he regards the former—in some of its actual manifestations—as already less extreme than the latter. If so, we might rather state his problem as that of introducing a little more reason than usual into the revolt against the kind of Intellectualism which is most in vogue at the present time. It is evidently this revolt that has his chief sympathy, and mainly as directed against a certain pretentious way of philosophising which is sufficiently specified in various parts of the book. As regards this, his contention is that a philosophy which arrives at sheer helplessness, by means of uncritical applications of the Law of Contradiction, and then seeks to console us with phrases confessedly untranslatable into practice, need no longer be taken seriously. Our thanks are due to him for showing so relentlessly the unimportance of the difficulties which have been raised by the misplaced labour¹ and ingenuity of those who attempt to ignore all considerations of practice. The essay on "The Metaphysics of the Time Process" and that "On Preserving Appearances" may be noted as enforcing this lesson, and especially the passage where (pp. 186, 187), instead of the argument that such and such a notion involves contradictions and that therefore the *things so named* are unreal, Mr. Schiller gives us another which is at least equally binding—that the things exist and therefore cannot be self-contradictory, and hence that the illusion must lie in so regarding them. As he elsewhere also puts it (in discussing Lotze's Monism, p. 66), "When a thing is actual, it must be conceived as also possible".

As far as regards the deflation of this wordy metaphysical method or fashion, and as regards the reform of Logic generally, it seems to me that we have no need of any Humanist doctrine beyond the recognition that meaning depends on application and

¹ In the essay on Axioms as Postulates he speaks of "the intellectual play of reflective idlers" in this connexion. But we need not therefore suppose him to deny that the game is played laboriously. So the most energetic professional cricketer may seem idle from the industrial point of view.

that thought is purposive throughout. But it may be that the reforms desired by Mr. Schiller in Ethics and Religion require something more full-blooded, something less exclusively an affair of reasoning. It is just here that one finds a difficulty in following his argument and seeing exactly where it leads. The safe part and the risky part of Humanism seem rather loosely related to each other, and it is also no easy matter to give any account of the latter which shall guard it against objections of a simple and obvious kind. Opponents are likely to say, with some show of truth, that it is only the inconsistency with which the view is held which saves it from leading direct to anarchy.

The objection has a familiar sound in philosophical controversy; and it is more easily answered from the Pragmatist standpoint than from any other. Since a doctrine exists only as applied, what appear to be inconsistencies may really be qualifications,—parts of the doctrine itself. The appearance of inconsistency may be due to our pre-occupation with an over-simple conception of what the doctrine asserts, a conception formed for controversial purposes mainly. No great ingenuity, at any rate, would be needed to state the risky part of the Humanist theory so as to make it seem absurd; and we shall, no doubt, see many plausible caricatures of it put forward in course of time by those who resist the proposed reforms. It is even possible that the opponents will not need to confine themselves to paraphrases, but will also be able to quote. In the interests of fairness therefore we may as well try to arrive at the spirit of Mr. Schiller's suggestions, without laying undue stress on this or that fragment of the literal text.

There can be no doubt that, however much he may appear to play fast and loose with the distinction between objective and subjective truth, his intention is not to weaken it but to reform it; and to do this by giving it a less simple and abstract meaning than it has usually had. Although in one passage¹ he plainly declares that there are no eternal and non-human truths to prohibit us from adopting the beliefs we need to live by, this does not amount to saying that there is nothing to prohibit our adopting whatever beliefs we please. However desirable a belief may be, it is only to be adopted tentatively and with a view to later verification. The need of verification is insisted on continually (e.g., pp. xv, 36, 57-59, 193). And although he declines to admit any infallible *a priori* tests of truth, he recognises—just as science does—a gradual growth of safeguards. The beginnings of them are to be found in the individual's own consolidation and subordination of interests under the main purposes of his life, and our less avoidable subjective aberrations are further controlled and sifted—on the same ground of purposes to be served—by the confirmation that individual views get, or fail to get, through social recognition. It is only in this way that Mr. Schiller would identify truth with

¹ P. xvii. The passage is reprinted by Mr. Schiller from a review of *The Will to Believe* written by him in 1897.

"the useful, efficient, workable, to which our practical experience tends to restrict our truth-valuations" (p. 59). Similarly, all that he says, both here and in *Personal Idealism*, about the gradual development of a postulate (or hypothesis) into an axiom (or accepted truth) is free from any taint of anarchy,—any trace of Irrationalism, one is almost inclined to say. So far there is nothing that is difficult for any observer of the ordinary methods of science to accept.

The difficulty begins with the step from admitting that recognition of truth depends partly on non-intellectual factors, to admitting that it should be frankly encouraged to do so. Opponents are likely to point out that between encouragement that is frank and encouragement that is undiscriminating, the line is extremely hard to draw. Indeed one may have much sympathy with the revolt against abstract Intellectualism and still agree with this objection. We may grant that there is no disinterested thought and still hesitate to put forward any generalisation¹ about the value of emotion as a guide to truth. Is it not, undeniably, sometimes a help and sometimes a hindrance or a snare? And at any rate we must be careful not to overlook the difference between admitting that we only judge at all under the stimulus of 'interest,' and admitting that the 'interest' we have in finding a particular judgment true can by itself justify our acceptance of it. The fact that the former kind of interest is necessary to knowledge does not prevent the latter from being one of the commonest sources of error. All this, in one way or another, Mr. Schiller seems to admit. What he really preaches as regards the will to believe may be no more than that we should give our instinctive beliefs, of a hopeful and courageous kind, a fair chance of turning out true by verification.

But then, if we adopt all these qualifications of Irrationalism, is there any particular point in claiming affinity with that movement? The fact of being in revolt against strict Intellectualism, or against excessive abstractness of method, is by itself hardly enough to serve as a link when the sources and the outcome of the revolt are so different. The difference is that Irrationalism obscures even the relative distinction between a well-grounded belief and a fool's paradise, while Humanism is content with showing that such a distinction cannot be made rigid. Humanism

¹ It is by no means clear that Mr. Schiller anywhere lays down such a generalisation. On the contrary, he often recognises emotion as a misleading influence. For example, it may cause "turbid complications" in religious belief (p. xiv); and again Spiritualists sometimes embrace their faith "not in a calm temper of scientific research, but in an emotional convulsion, and, it may be, with a pathetic eagerness to deceive themselves" (p. 238). Elsewhere too (p. 58) he points out that our *feeling* a thing true will not *make* it so. And, speaking of those who wish to exclude teleology from science, he says it is ludicrous to maintain that everything is blue because we insist on wearing blue spectacles (p. 154).

does not, like Irrationalism, distrust the use of reason, as such, in distinguishing between real and delusive utility in our beliefs, but rather protests in the name of reason against certain assumptions which are often too blindly trusted in the name of a systematic philosophy. It objects not to reason, but to excessively wordy reasonings. This is shown clearly in essay xi. Again, Mr. Schiller's attitude towards the old conflict between Faith and Reason is not to assume their separation and then to subordinate the latter to the former, but rather to criticise the distinction itself.

Though the results that are claimed for the Humanist method are to a great extent critical or destructive of certain other philosophical habits and tendencies—for example, of Absolutism, and (less definitely) of Monism in general, and of Naturalism—there are also indications of more positive benefits which are intended to follow from it. On the whole the claim is that it sets us free to expand towards a more harmonious view of things, and to escape from fatalism and despair. This result is to be hoped for through the recognition that the supposed determinateness of the universe is an unproved and indefensible assumption, and that though the real may not be plastic to our every demand still its determination rests largely in our own hands. The argument here is again rather hard to follow, if only on account of the (probably unavoidable) vagueness of the conclusion. However, the reader had better consult Mr. Schiller's own statement of it,¹ since the account just given does not pretend to do it full justice.

But leaving aside the question how far and in what sense man may be said to create or control reality, there are other points in Mr. Schiller's doctrine which evidently have constructive value. One of these is his attitude towards "methodological assumptions,"—exemplified in the essay on Darwinism (pp. 147-9), and again in the essay on Psychical Research (pp. 270-280). It is only so far as the purposiveness of thought is thoroughly recognised that both the truth and the falsity of methodological assumptions can be simultaneously admitted,—their truth for one purpose and their falsity for another, their value at one stage of an inquiry combined with their obstructiveness as soon as that stage is passed. This is one of the cases where philosophy can learn more from observing the ways of science than science has yet been able to learn from observing the ways of philosophy, and few things have been more detrimental to progress than the metaphysician's dream of doing without "mere practical makeshifts" and achieving perfect truth by refusing to compromise. May we not rather say that the art of discovering truth depends largely on our power of combining the will to believe with the will to leave off believing exactly at the point or points where a belief loses its practical value?

There is constructive intention also in the four concluding

¹ See pp. 10-15, and specially the note on pp. 11, 12.

chapters. In the essay on Activity and Substance Mr. Schiller seeks to revive the Aristotelian notion of an activity which transcends change and motion, and he claims that by means of it we can supersede a number of misconceptions which have been a constant source of trouble in science and philosophy, and can even throw some light on what would otherwise appear to be inconceivable mysteries,—such as the nature of the divine consciousness. Among the scientific and philosophical errors due to the assumption that activity involves motion he instances the belief in the decadence of the universe through the "dissipation of energy," and the difficulty we have in believing that consciousness may persist "in an eternal fixation of unchanging objects". He is inclined to identify the objection to motionless activity with the objection to the notion of an attainable Good, and puts the objectors in the dilemma of either imagining that a confessedly unattainable ideal is one that a rational being can aim at, or else renouncing ideals altogether. Both in the case of life and in that of consciousness his argument is that as long as activity is made dependent on adjustment to changes we are committed to the paradox that improved adjustment means steady progress up to the instant when it becomes perfect, and then suddenly and inexplicably all the results of the progress are blotted out.¹ I find, however, a difficulty in conceiving what is meant by an adjustment (to changes) so perfect that the *changes* disappear. The argument seems only to support an activity devoid of *discord*, or perhaps of the kind of change that is felt as trouble or insecurity.

The three last chapters are concerned with Immortality and a future life; and contain an interesting explanation of the lukewarm interest generally taken in these questions, a statement of some reasons why this is to be regretted, and an appeal to philosophers to play a leading part in Psychical Research,—a science in which (owing to its present boneless condition) philosophy has a better chance of intervening effectively than in the case of older systems of knowledge, since these not only have a much longer record of work achieved, but also feel to a greater extent the drag of vested interests. It is specially in regard to the adoption and criticism of methodological assumptions, Mr. Schiller holds, that philosophy has in this department of science some useful work to do. He urges us to interpret any supposed future life by the knowledge we have acquired of our present life. Our theological heavens and hells are notoriously ineffective in providing motives for resisting temptation, and this result he traces to their excessively 'supernatural' character, their extreme lack of connexion with our present range of experience. Hence a systematic challenge of the assumption that another world must be inconceivably different from this one is needed to clear the air. He seems also to favour the belief in personal spirits rather than any of the vaguer and

¹ See pp. 215-218.

more complex theories that have been suggested (p. 276), claiming for it the same kind of methodological value that the 'solid' atom has in physics over the 'vortex ring' or the 'ether stress'. In the remainder of the final essay he argues against the supposed difficulties in the way of believing in a future life, and concludes that while a scientific proof of the annihilation of the soul is rigorously impossible, there is no such intrinsic impossibility about a scientific proof of the persistence of consciousness through the shock of death.

It is unnecessary, in writing for MIND, to dwell on the qualities of Mr. Schiller's exposition of his views, as distinct from the views themselves. His wit and incisiveness, and his entire freedom from the manners of the owl and the tricks of the ostrich, are well known to the readers of this Journal. Probably, however, there is a real connexion between the Humanist theory and the literary virtues so characteristic of Mr. Schiller and Prof. James. Courage and original thought are among the essential notes of Humanism, and whatever defects it may at present have it shows at least no inclination to win an inglorious safety from attack by running for shelter either to truism or to catchwords or to mere authority.

ALFRED SIDGWICK.

La Formation du Radicalisme philosophique. I. La Jeunesse de Bentham. II. L'évolution de la doctrine utilitaire de 1789 à 1815. III. Le Radicalisme philosophique. Par ELIE HALÉVY. Paris: Félix Alcan, 1901-1904. Pp. xv, 447; iv, 385; v, 512.

THIS work is a contribution of first-rate importance to the history of political philosophy in this country. To English readers it may seem, at first sight, as if the ground were already occupied by Sir Leslie Stephen's *English Utilitarians*, which was published about a year before M. Halévy's first two volumes appeared. But it would be a misfortune if the later work were to suffer neglect on this account. The plan of the two books is different, although they deal with the same period. Sir Leslie Stephen has given a brilliant description of the Utilitarian School in its manifold activity. The scope of M. Halévy's work is more concentrated, although his material is drawn from as wide a range. His task is to trace the genesis and development of the set of doctrines which formed the creed of the philosophical Radicals; and this task he has performed in the most thorough and exhaustive way. He has complete command of the voluminous literature of the period, including the mass of unpublished documents; in particular, he has gone through the Bentham manuscripts deposited in the library of University College, London, and they have yielded im-

portant material to his exposition of the growth of Bentham's opinions. A feature of the work is the notes appended to each volume, containing full references to and illustrative extracts from the literature. An appendix to the first volume gives an interesting account of the way in which Bentham's MSS. were dealt with by Dumont, by printing on opposite pages specimens of the original MS. and Dumont's version.

The first volume covers the period prior to 1789, the date of publication of Bentham's *Principles of Morals and Legislation*. It consists of three chapters, dealing respectively with Bentham's principles and their origin, his juridical philosophy (civil law, penal law, and the relation of his doctrines to the epoch), and his economical and political theories: the last in two sections, one entitled 'Adam Smith and Bentham,' the other 'Democrats and Utilitarians'. The first chapter of the second volume is on the Political Problem, and is in two sections: one on the opposition between the principle of utility and the Declaration of the Rights of Man, and dealing with the relation of Burke and Bentham; the other dealing with Mackintosh, Paine and Godwin. The second chapter—on the Economic Problem—discusses the right to subsistence (with special reference to Godwin's views), and Malthus's principle of population. The third chapter, on Bentham, James Mill, and the Benthamites, is divided into four sections: the birth of Radicalism; from Adam Smith to Ricardo; the education of the people; growing fame of Bentham. The three chapters of the third volume treat respectively of the Natural Laws of an Economic Society; the Organisation of Justice and the State; and the Laws of Thought and Rules of Action. A conclusion sums up the doctrine and influence of Bentham.

It would be out of place, in this journal, to give an exhaustive review of the author's treatment of these topics, which enters into considerable detail on matters of economics, polities, and jurisprudence: it must suffice to acknowledge the combination of lucidity and thoroughness which distinguishes his exposition. My comments will be confined to a few points of more general philosophical interest.

Bentham has himself given an account of the formation in his mind of the utilitarian principle and of the hedonic calculus, in two passages quoted here from his manuscripts. The earlier is ascribed by M. Halévy to about the year 1782, and contains the following sentences:—

"The idea of considering happiness as resolvable into a number of individual pleasures I took from Helvétius. . . . The idea of estimating the value of each sensation by analysing it into these four ingredients [intensity, duration, probability or certainty, proximity] I took from M. Beccaria: gleaned up those several articles from different places in which I saw them made use of in estimating the force and utility of punishments. Considering that punishment is but pain applied to a certain purpose, that the

value of a pleasure is composed of the same articles, and that pains and pleasures, and actions in as far as they had a tendency to produce or present the one and the other, were all that morals and politics or so much as was of any use or meaning in the sciences had in view, it seemed to me that such an analysis was the very thing that was wanted as the foundation for a complete system of moral science" (i., 404).

The other passage is a letter to Dumont dated 6th September, 1822:—

"When I came out with the principle of utility, it was in the *Fragment*, I took it from Hume's Essays, Hume was in all his glory, the phrase was consequently familiar to everybody. The difference between Hume and me is this: the use he made of it was—to account for that which *is*, I to show what *ought to be*" (i., 282).

The former of these passages is perfectly clear so far as it goes; and incidentally it seems to me to elucidate a difficulty in the Benthamite calculus which has been criticised by Sidgwick. Sidgwick's criticism is that 'certainty' and 'proximity' are not independent characters, and that the mere fact of the greater proximity of a pleasure or pain does not affect its hedonic value except in so far as it affects its probability: in a rational estimate one moment of conscious life is not of greater value than another moment. This criticism is unanswerable. But the passage quoted shows how Bentham came to fall into the error. He was following Beccaria's analysis of the effects of punishments; and the proximity of a punishment does affect the will with a force which cannot be measured simply by its degree of certainty. Bentham's mistake is due to his making no allowance for the difference between the circumstances which influence conation and the circumstances which are relevant to a purely rational estimate.

The later date of the second passage detracts from its authority; it is difficult to decide how much weight should be assigned to the reference to Hume, whose position in the Utilitarian succession is not easy to define; and perhaps Priestley influenced Bentham more than Hume did. The formula of utilitarianism at any rate was much earlier than either, and was clearly stated by Hutcheson in 1725, in the words: "That action is best which accomplishes the greatest happiness for the greatest numbers" (*Inquiry*, p. 164); and from this source it was perhaps derived indirectly by Bentham. Helvétius followed in 1758 by defining justice as consisting in "la pratique des actions utiles au plus grand nombre" (*De l'esprit*, II., chap. xxiv.), but whether he was indebted to Hutcheson I do not know. Beccaria, however, is thought to have read Hutcheson (cf. Scott's *Hutcheson*, p. 273), and his *Dei Delitti e delle Pene* (1764) expresses the criterion in the phrase "la massima felicità divisa nel maggior numero"—a phrase Englished by his translator (1767) by "the greatest happiness of the greatest number," the exact words which Bentham uses to express his "fundamental

axiom" in the preface to his *Fragment on Government* (1776).¹ In a footnote to the *Fragment* he refers to Hume for the general principle that virtue is founded on utility, and to Helvétius for the denial of any exceptions to that principle.

Hume's relation to utilitarianism and the attitude of the utilitarians to Hume are briefly but excellently characterised in the opening chapter of the work. The principle of association and the principle of utility were both elaborated by Hume, but rather as a weapon wherewith to overthrow intellectualist theories than as themselves an adequate basis for a rational philosophy capable of application to life. His criticism was too thorough for the militant utilitarians. He pointed out how utility is characteristic of every object of admiration, but, in spite of Hutcheson's contribution, he passed quantitative utilitarianism by in silence, and of Helvétius's *De l'esprit* he wrote to Adam Smith, "It is worth your reading, not for its philosophy, which I do not highly value, but for its agreeable composition" (Burton's *Hume*, ii., 57).

The central question for the adherents of utility is that of the relation of the interests of the individual to the interests of the community. Throughout his whole work M. Halévy brings out the persistence of this problem, and the different ways in which it was sought to establish an "identity of interests". Three methods are distinguished by the author, all of them, as he says, to be found in Hume. According to the first method the identification takes place spontaneously in the individual consciousness by sympathy or by the moral sense; and this method is used by Shaftesbury and Hutcheson, although it is obviously inadequate to the facts. According to the second method, the egoistic tendencies of different individuals harmonise in their results and produce mechanically the good of the species. This idea of the "natural identity of interests" is a leading conception of Adam Smith's economics, according to which the active pursuit of his

¹ Bentham's own account of his acquaintance with the phrase is different. In his *Common-place Book* (1781-1785) he says: "Priestley was the first (unless it was Beccaria) who taught my lips to pronounce this sacred truth" (*Works*, x., 142); and, in an account (undated by Bowring) of a tour in the north of England made with his father in 1764, he writes, "Warrington was then classic ground. Priestley lived there. What would I not have given to have found courage to visit him? He had already written several philosophical works; and in the tail of one of his pamphlets I had seen that admirable phrase 'greatest happiness of greatest number'" (*Works*, x., 46, *cf.* x., 79). But Priestley's philosophical works were all subsequent to 1764, and his editor has not "found the 'phrase' *verbatim* in Dr. Priestley's works," and thinks that Bentham's reference must be to p. 17 of the *First Principles of Government*, which was published in 1768. See Priestley's *Works*, ed. Rutt, I., i., 52. Probably Bentham's memory was not quite accurate. Judging from the identity of verbal expression, it seems to me most likely that he got the 'phrase' from the English translation of Beccaria. It was Bentham's influence which gave it currency.

own interest by each individual tends to realise the general interest, not exactly "d'une manière immédiate," as M. Halévy says (i., 21), but under the overruling guidance of "an invisible hand". Or, dropping its more paradoxical assertions regarding present conditions, this theory of the natural identity of interests may still be maintained as the statement of a tendency which is being progressively realised. In this form Hartley derived it from his doctrine of association; it was further developed by Priestley, and became a doctrine of indefinite progress and of the perfectibility of man, leading logically in Godwin to the thesis of anarchism (i., 238). According to the third method, the identification of interests is contrary to nature and can only be brought about by the artifices of the legislature. The three methods may thus be described as fusion of interests, natural identity of interests, and artificial identification of interests. The last is the primitive and fundamental form of Bentham's doctrine of utility—it forms his 'duty and interest junction principle' (ii., 154)—and explains the prominence in his thought of the problems of penal law. Hume had already adopted this view for the purposes of his political theory; but M. Halévy is right in pointing out Bentham's special indebtedness here to the influence of Helvétius and also of Beccaria. The distinction between the natural and the artificial identification of interests is repeatedly referred to by the author in the course of his work, and is of great importance in making clear the different developments of thought connected with the utilitarian principle.

The circumstances which led to the formation of the doctrine of philosophical Radicalism are brought out with great care by M. Halévy.¹ Priestley was a democrat as well as a utilitarian, but he does not seem to have influenced Bentham in the direction of Radicalism. Democracy was associated (as in Richard Price) with a theory of innate ideas and natural rights. It was natural therefore that Bentham should oppose both the dogmas of Whiggism in his *Fragment* of 1776 and the more pretentious dogmas of the French Declaration of Rights in 1789. It was in an article in the *Edinburgh Review* for January, 1809, that James Mill based the doctrine of representative government on the doctrine of utility. Bentham had made his acquaintance in the previous year, and his conversion to Radicalism is referred by M. Halévy to about this time: "He allied himself with the radicals of Westminster, got converted to their opinions, and provided them with a theory" (iii., 341). It was only after his pet projects had been neglected or trifled with by 'the insolence of office' that Bentham came to see that an aristocracy is a corporation and that a corporation has necessarily interests of its own opposed to those of the public.

¹ Coleridge is, however, rather inappropriately referred to (ii., 8) as if he were an adherent of the "metapolitics" which he criticises. See *The Friend*, sect. i., essay 3.

"This is the conclusion, but Bentham's premisses are not so much abstract principles as the actual events which had marked the previous twenty years of his life. He once reproached James Mill with hating oppression 'less from love to the many than from hatred of the few'. Would not the observation apply just as well to Bentham?" (ii., 193.)

Mill was the most potent force in co-ordinating and promulgating the creed of philosophical Radicalism. "Bentham gave Mill a doctrine; Mill gave Bentham a School," says the author (ii., 187). But he did much more than this, as M. Halévy shows, whose third volume is largely filled with Mill's activity. Mill was the philosopher, the thinker, of the school, who looked to him to find a secure basis for their doctrines in the 'phenomena of the human mind'. M. Halévy's account of Mill's philosophical opinions is of great value, and includes an interesting comparison of his psychological method in morals with the juridical method of Bentham. The former was rigorously egoistic, but as such (the author holds) only continued the tendency to an egoistic explanation of all mental facts which had constantly tended to predominate in Bentham's system (iii., 293). "It is the moral code of a new time which Bentham and James Mill promulgate, . . . a plebeian, or rather *bourgeoise* morality, made for working men and careful merchants, which teaches its subjects to take into their own hands the defence of their interests, a morality reasonable, calculating and prosaic. The morality of the utilitarians is their economic psychology put into the imperative mood" (iii., 316).

The work closes with a judicious estimate of the practical achievements of Bentham and his school, and of the value of the ideas by which their thought was determined.

W. R. SORLEY.

Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol ii., *Physiology and Psychology.* Part i., "Vision," by Dr. W. H. R. Rivers, with an appendix by C. G. Seligman. Part ii., "Hearing, Smell, Taste, Cutaneous Sensations, Muscular Sense, Reaction Times," by Dr. C. S. Myers and Dr. W. McDougall. Cambridge: University Press, 1901, 1903.

THESE volumes are two of a series dealing with the anthropology of the Torres Straits, and give some results of the work done by the Cambridge Anthropological Expedition. Both of them deal with psychological data collected on sensory levels and do not undertake any treatment of such problems as the psychology of grammatical construction, or of religious ideas or methods of reasoning. The procedure was necessarily such as required little or no conscious introspection on the part of the natives, and was completely *unwissenstlich*.

It would be impossible in a review, especially in a short one, to give in detail either the methods employed or the conclusions reached; but several important general psychological considerations may be selected for comment.

There has always been a tendency, in speaking of the differences between civilised and savage man, to rate the latter much higher than the former in all that relates to sensory perception. Travellers have told us of the marvellous visual and auditory acuity possessed by primitive peoples. And educational reformers, insisting on the necessity for preserving acute sensory discrimination, have pressed upon the common schools a great deal of work to counteract our own alleged growing sensory defects. But to be certain of the facts is always something, and the volumes before us go a long way towards supplying us with knowledge. When supplemented, as I hope they may be, by similar work on a large scale on civilised man, children as well as adults, we may be in a position to make general conclusions, psychologically and pedagogically.

In Visual acuity Dr. Rivers concludes that the savage is rather superior to the white man. He rightly points out that the savage power of identification is a power to identify objects known to him, and not so well known to the white man; so that comparisons thus instituted are not tests of visual acuity. This consideration, by the way, makes the conclusions based upon the identification of letters by European school children of very doubtful value as visual tests. The Torres Straits native does not fatigue easily, but does not improve rapidly; the European does both. It may be that rapid fatigue is connected with rapid improvement, but most probably the distance from 'saturation point' is an important and overlooked factor.

Of course we carry our own standards with us and call the normal long vision of the savage and the child 'hypermetropic,' but this is not necessarily a defect among savage peoples, having regard to their conditions of life. The savage, we read, finds things more easily in the dark, his 'visual purple' accumulates more rapidly; but some of us can find things easily in the dark and good motor memory may account for it, without superior vision.

One of the most interesting general conclusions in this part of the work is that which is forced upon Dr. Rivers that the 'elaboration of the sensory side of mental life should be a hindrance to intellectual development' (p. 42). Some of us, who have always contended that mental elaboration of our sensory material is more important educationally than an extensive accumulation of touches, and sights, and sounds, will call attention to this opinion with pleasure, as it is evidently not the notion with which the author commenced his investigations.

Another point of general psychological interest is that raised in connexion with colour sensation and nomenclature. Has the

colour-sense developed in man within historical times? We know that colour terminology has shown such a development; is it, or is it not, accompanied by a growing sensibility? Or must we say that the 'sensations' have been the same all along, but lacking names of distinction? The psychologist who approaches his subject from the philosophic side would, I think, give an *a priori* probability to a view which implied parallel development. But psychologists who approach the matter from the standpoint of natural science seem to incline to a non-developmental view of colour sensation. It is so hard to get on without atomic constants, that they are apt to postulate that the several sensations must have been there all the while. Dr. Rivers, however, inclines to the former view. The problem is to find a test not involving the use of language, which will show whether defective sensibility is, or is not, allied to defective nomenclature.

Mr. Lovibond's tintometer was used with glasses of varying colour saturation on one side and colourless glass on the other. The Murray Islanders said that they saw 'red' when at a lower saturation than that required before Europeans could distinguish it, and the reverse was the case with 'blue'. The threshold was estimated by finding the glass which could be correctly named four times out of five. Here, obviously, the colour name is still operative, and we have yet to seek a test independent of it if we are to obtain anything 'objective' which may confirm or negate the theory that defective sensibility accompanies defective nomenclature. Some reaction must be found more independent of colour names. Yet, unless there is connexion between sensibility and nomenclature, it is hard to see why natives, giving to colours the names of natural objects, should deliberately call a brilliant blue by a name applied to dirty water. In colour matches, there was confusion between green and blue, and black and blue, and blue and violet, whilst blue-yellow blindness, so rare among Europeans, was suspected. Women did not know colour names so well as men, and were less critical as to shades of colour. These considerations point to the theory of connexion, but the tintometer tests hardly advance the matter much.

A section on what are ordinarily called spatial illusions has interesting bearings on the general sensory similarity supposed to exist between savage man and the civilised child.

The over-estimation of vertical lengths as compared with horizontal lengths is found to be both considerable in amount and constant in occurrence among Murray Island adults. Teachers of elementary drawing know how widespread the same 'illusion' is among English school children and how hard it is to overcome it, even partially. Dr. Rivers suggests that the oval field of binocular vision may account for it; but, if so, monocular vision with a less oval field should show it less, and we must await quantitative results on this point.

In the second part of the volume the range of sensory experi-

ment is a wide one, and this section is occupied with many detailed results carefully worked out, as in the first section, yet differing from it in containing less in the way of suggestive theory.

Here, again, in the case of Hearing, we have the reduction of travellers' stories to scientific moderation and accuracy. Inference is found to play a very important part in the ready identification which has so often been ascribed to auditory acuity. Acuity of Hearing in savages seems distinctly inferior to that of civilised man, though perhaps we lack a sufficient number of Europeans tested under the same conditions. One is less surprised at finding that tone discrimination is inferior to that of Europeans, for musical capacity, with the tone discrimination which it implies, is generally held to be more especially a civilised product. Range of pitch perception, however, is equal to that of civilised man. Dr. Myers thinks that some failures arose "from lack of interest rather than intelligence". Perhaps the notion that interest is something quite outside and independent of capacity needs critical mention. A noteworthy point is the very little improvement which was effected by practice. Children of both native and civilised communities were 'more discriminative than adults,' "saturation" point is probably reached at a very early age. But in this respect there was a very marked difference between the higher pitch limit and just perceptible tone differences. In the latter case the islanders were poor, and the connexion between interest and capacity comes out strongly, for these estimations were certainly "the most distasteful to them," but improvement by practice was rather marked.

The next section deals with Olfactory acuity and discrimination. In smell, more markedly than in other senses, increase in strength produces change in quality as well as in intensity.

The average olfactory acuity seems slightly higher in Murray Island and in the Torres Straits generally than in Aberdeenshire, and the children of both communities seem more acute than the adults. It seems hard to reconcile the stories of great olfactory power possessed by primitive peoples with such results as these. Perhaps the difficulty lies in finding scents with which European and savage are equally familiar or unfamiliar, and it may be that olfactory organs, specialised in certain directions by the usages of life, less readily respond in others than the relatively undifferentiated sensibility of childhood. Practice may make perfect; but a specialised perfection, not a general adaptability, is the result.

An interesting question, all too briefly treated, arises in connexion with taste discrimination and taste nomenclature. Dr. Myers thinks that the confusions were those of nomenclature only. Dr. Rivers thinks, on the parallel question of colour nomenclature and sensibility, that a connexion exists between one confusion and the other. One important consideration is that when placing 'sweet,' 'salt,' 'acid,' and 'bitter' substances in order of preference, the bitter solution was always placed last, though the name was

by no means definite. On the other hand the writer states that "many Europeans have a very indefinite notion of what bitterness really is". We need some method of sorting tastes as we sort colours, if we are to arrive at any clear conclusion on this debatable question.

Dr. McDougall deals with cutaneous sensations. The power of tactile discrimination is found to be about double that of the European, though sensibility to pain is only half as great.

The so-called muscular sense is more discriminative than among Europeans; practice seems to have little to do with it, as children and adults are much the same. And it seems that the differentiation between their sensations of weight and size are less, or the associations more complete, since the size-weight illusion was much more marked than among Englishmen.

Speaking generally, the philosophical interest of work of this kind seems to me very considerable. We have always known of sensory illusion, but sensational change and development is not sporadic, it seems, nor occasional, but normal evolutionary process. If we can rid ourselves of the notion that unity of thought can be assured if we only put everybody face to face with the same material objects, to touch, and see, and hear for themselves, it will be something gained. Sensations can no longer be held to be beyond the reach of error, or considered as changeless identities, atoms of solid truth in a world of changing judgments.

W. H. WINCH.

Why the Mind has a Body. By C. A. STRONG, Professor of Psychology in Columbia University. New York: The Macmillan Company, 1903. Pp. 355.

THIS volume, which treats of the connexion of mind and body both in its empirical and in its metaphysical aspects, falls into three divisions. The first part states what Prof. Strong calls the empirical data of the problem, arranging them into classes and discussing their consistency with each of the three current theories, interactionism, automatism and parallelism. The problem cannot, however, be empirically solved, and our author accordingly launches out into metaphysics, developing a theory which he regards as an extension of the panpsychism of Fechner and Clifford. The third part then gives 'experimental confirmation' of this metaphysic by application to the problem in hand. Mr. Strong claims that it enables him to state the parallelist doctrine in a new light before which its chief difficulties vanish.

Prof. Strong possesses unusual power of exposition and illustration; and the volume is throughout delightfully fresh and vigorous. To all those who agree with Prof. Ladd (*vide MIND*, July, 1903) that the time has come for a thorough revision of the various

theories as to the relation of mind and body, and who desire to reconsider the problem in its various aspects, this volume can be most heartily recommended.

Nevertheless I have found difficulty in reviewing this book. It covers so large a field and contains so much highly controversial matter, that while a summary of the whole would be too general to be intelligible, a criticism merely of detailed points would be unfair to the author. I shall strive to steer a middle course, indicating the general scope of the work by statement and criticism of a few of the author's main positions.

Most of Prof. Strong's readers will probably agree that the parallelist theory, spite of the paradoxical conclusions to which it leads, justifies itself as a practical working hypothesis. Though it cannot be demonstrated as a necessary consequence either of the nature of the causal relation or of the principle of the conservation of energy, it may be followed so long as it proves fruitful in enabling the physiologist and the psychologist to systematise their data. Mr. Strong, however, states the doctrine in a form which I find utterly unthinkable. "The correspondence applies not merely to the elements on each side but also to their relations and arrangement. The brain-process becomes a sort of translation of consciousness into physical terms, the relation between the two being comparable to that between a sentence in Greek and its translation into English. The correspondence implies, in other words, that the mental element has the same place and function in the mental series that the physical element has in the physical series" (p. 79). Now I had thought that Dr. Ward's criticism in his Gifford Lectures had finally disproved such teaching. It would surely, as Dr. Ward has insisted, be strange indeed if two complete opposites could so completely correspond. Can we hope to find in the mechanical sphere of matter and motion a symbolism adequate for the expression of the higher unity of the mental life? Wundt seems justified in asserting that such a belief involves the assumption of a *Seelenpunkt* in the brain—an assumption to which physiology yields no countenance, if indeed, as Dr. Ward adds, it is even conceivable. As the definition of parallelism is fundamental, and Mr. Strong draws many important inferences from it, it is disappointing to find him ignoring such difficulties. His reply in chapter iii. to Wundt's carefully stated limitation of the parallelism seems to me quite inconclusive and much too general. Wundt's chief arguments he does not even mention. He limits himself to proving, what Wundt would never dream of denying, that brain-fatigue affects attention and all the higher powers of mind. Those who reject an absolute parallelism are surely not committed to any such outrage on the obvious facts.

Prof. Strong's treatment (chapter vii.) of the argument for parallelism from the principle of the conservation of energy is excellent. While indicating that his own metaphysical view is quite compatible with, and indeed implies, the universal validity

of that principle, he contends that as it is an induction from experience, "based solely on the study of physical events which are unaccompanied by consciousness, it cannot be argued without fallacy that where physical events are accompanied by consciousness it must hold good just the same" (p. 141). It is not a necessary law of thought, and has therefore only the provisional validity of a regulative principle. Mr. Strong's method of connecting the doctrine of parallelism with the causal argument which he considers to be its chief support does not seem to me equally satisfactory. Though I altogether sympathise with his unwillingness to admit the possibility that such different things as motion and sensation can be causally related, I cannot agree with his mode of argument. His criticism of Hume—that in asserting the absence of rational connexion in physical causation he overlooked the qualitative identity and quantitative equivalence of cause and effect—is certainly unjust. Hume's favourite instance of such relation is that of two billiard-balls interacting. He was quite aware that the effect varies in quantity with the cause, but such equivalence he rightly regarded as merely an empirical datum or sign enabling us to determine with greater certainty which sequences we may name causal. It yields no real insight into the actual nature of the causal connexion. Even should the empirical facts yield adequate proof that the cause *becomes* the effect, Hume's main contention, that the 'passage' of the motion from the one ball to the other can never be traced in thought, remains unaffected. I therefore quarrel with such sentences as the following: "[In psycho-physical causation] there can be no construction of a continuous series reaching from cause to effect. . . . We cannot, as in purely physical causation, picture to ourselves the cause passing over into the effect or giving birth to it by transformation, since the two belong to different orders of existence" (p. 153). The same difficulty really exists in both cases.

But my chief reason for disagreeing with Prof. Strong is that his view of causation would force us to the conclusion that causal activity is intelligible, exists "in the proper sense" (p. 157), only where there is no difference of quality between cause and effect. Now that would limit all real causation to the unreal abstract world of matter and motion, and would contradict Mr. Strong's own repeated assertion of psychical causality. "Since brain-events are active things, we must ascribe a corresponding activity to the accompanying mental states, otherwise the parallelism would be incomplete" (p. 85). Indeed, later on in the book we find the author maintaining that physical processes are in a metaphysical sense unreal, and merely symbolical of mental causation. It is, then, surely, on Mr. Strong's own showing, impossible to eliminate qualitative differences from the causal relation, and the disparity of the mental and the physical is by itself no disproof of their causal interconnexion. Also, as Mr.

Strong himself points out, the argument, when taken as proof of the parallelist theory has a further defect, namely that it assumes, what cannot be empirically proved, that mental state and brain-state are simultaneous, not successive.

Probably the real reason of Mr. Strong's unsatisfactory treatment of the causal argument is the sharp distinction which he draws between it and that from the principle of the conservation of energy. The two arguments are really at bottom one, and can only be adequately discussed in their connexion. The confusion caused by their separation is specially obvious on pages 156-157.

In the following sentences (pp. 159-160) Mr. Strong sums up his examination of the various empirical arguments: "Of the sound ones, the causal argument proves the parallelist thesis, but its validity is hypothetical, resting on the assumption that mental events are simultaneous with their cerebral correlates. We may therefore dismiss it from consideration. The argument from the principles of biology appears to prove the mind efficient; but it is subject to the difficulty regarding the origin of consciousness. The argument from the principle of the conservation of energy raises a strong presumption, not amounting to demonstrative proof, that the contrary is the case. Thus two great branches of natural science seem arrayed against each other. Physics and biology appear to authorise opposite conclusions concerning the efficiency of mind." Metaphysics alone can be the arbiter between them.

The following is Mr. Strong's own statement of his metaphysical results (p. 295): "The prime reality, the only reality ever immediately given, is consciousness. Matter is not a reality, but a phenomenon. As such it symbolises things-in-themselves, whereas mental states as such symbolise nothing. . . . Since consciousness is the only reality of which we have any immediate knowledge, and therefore the only sample of what reality is like, we have no other conception of a reality. Hence we must assume things-in-themselves to be mental in their nature; and this is the more necessary, that individual minds arise out of them by evolution."

Though this metaphysical theory is developed with considerable subtlety of argument, Mr. Strong seems to me on the really crucial points to show very inadequate appreciation of the difficulties he has to face. For instance, though his whole theory rests upon the assumption that all experience is purely subjective, he offers as its sufficient proof the phenomena of colour-blindness—"the notion that the objects I see are literally *identical* with the objects you see being a gross superstition, refuted, among other things, by the facts of colour-blindness" (p. 223). But surely that view, perennial in philosophy, cannot be so simply refuted. The incapacity of a man colour-blind to see the colour another man sees is no proof that he would not if he could see. The conditions being altered, the objects seen cannot be in all respects identical. The general argument, that our perceptions are subjective because they vary not only with the object but with the

retinal impression and the brain-state, would ultimately prove the subjectivity of every element in our perceptions, and therefore (as Mr. Strong himself admits) the subjectivity of those brain-states of which the impressions are supposed to be the effects. Mr. Strong throughout implies that to prove the conditionedness of our perceptions is to prove their subjectivity: two very different things. Physiology indisputably establishes the first: many philosophers (with deference to Mr. Strong's opposite opinion) question the second.

Mr. Strong's method of escaping solipsism is equally high-handed, and may almost be regarded as an indirect refutation of his view of consciousness. As consciousness cannot transcend itself, our knowledge of other minds is founded, he holds, neither on reason nor on experience, but solely on instinct. This transcendence, however, turns out to be involved in every act of memory. Relatively to the present moment, "the past experience remembered is in the position of another mind and the knowledge of it transcendent" (p. 222). "Memory is therefore as genuine a surmounting of the bounds of experience as the knowledge of other minds." Similar statements are made with regard to the completed act of perception. Hence Mr. Strong must couple his thesis that consciousness is essentially immanent with the complementary limitation that it is in all these processes by instinct transcendent—which looks very like external adaptation of a false theory to conflicting facts. Mr. Strong does not indicate how he would explain the origin and working of such an instinct, and many of his readers will be rather sceptical of his succeeding where Hume has failed.

Owing to lack of space, I cannot enter upon Mr. Strong's metaphysical restatement of the parallelist theory. It is simply a particular application of this general metaphysic, but is developed with great subtlety, and with detailed, and often valuable, criticism of all opposing theories. Of the many excellent qualities of this volume I cannot speak too highly. Its freshness and vigour will commend it even to those who, like myself, find difficulty in agreeing with its metaphysical conclusions.

NORMAN SMITH.

Giordano Bruno. By J. LEWIS MCINTYRE, Anderson Lecturer in the University of Aberdeen. London: Macmillan & Co. Pp. xvi, 365.

MR. MCINTYRE has here provided the English reader, for the first time, with an adequate and circumstantial account of the philosophy as well as the life of Giordano Bruno. Many small points relating to the life which have been disclosed in recent years are incorporated. If we may draw the obvious inferences

from the most recent information, we can now partly explain Bruno's return to Italy after he had written as he did of the "vicar of the tyrant of hell," the "three-headed Cerberus with its threefold tiara," the "dog of Styx," the "Tiberine beast," the "monster of perverse Papal tyranny, which has tongues more numerous than the hairs of the head, aiding and serving it, each and all blasphemous against God, nature and man, infecting the world with the rankest poison of ignorance and vice" (pp. 58-61). The proceedings of the trial at Veniœ, Mr. McIntyre concludes, "make it extremely probable that the Inquisition laid a trap for Bruno, into which he unsuspectingly walked". For Mocenigo, the betrayer, "had been one of the *Savii all' Eresia*—the assessors appointed by the State to the Inquisition Board in Venice". He may have promised Bruno the protection of the Venetian Republic, —which, indeed, was unwilling to give him up for trial at Rome, and, in return for its reluctant compliance, was thanked by Pope Clement with "courteous and kindly words". "The persistency of the Pope's representative at Venice," says Mr. McIntyre, "and the Pope's evident relief when Venice yielded, show how important the death or complete recantation of Bruno had come to be thought by the Catholic party" (p. 85). Still, his return to a country where the Inquisition had its seat remains sufficiently astonishing; though it is almost paralleled by the author's remark (p. 294) that Bruno "all his life belonged in spirit if not in outward conformity" to the Roman Catholic Church. The case is rather that he was always willing to conform if he might remain avowedly in spiritual separation. His demand on behalf of philosophy, in return for outward conformity, was that he should be free to propagate his own thought among those who were able to understand it. This position—now only intelligible historically—explains his temporary yielding before the Inquisitors at Venice. It had long been a theoretical position of heterodox philosophers that, while the religion of faith and authority might suffice for the many, the few who were competent ought to be allowed to pursue truth for its own sake. The Church of course perceived (what was perhaps not altogether hidden from the philosophers) that sooner or later the ideas of the few would penetrate to the many; and the doctrine of the "double truth" was no more allowed in the sixteenth century than it had been in the thirteenth. If Bruno adhered to his philosophy there could be no doubt as to his ultimate fate. "One thing is certain: he never either then or afterwards recanted or in any way withdrew a single proposition belonging to his philosophical creed" (p. 87).

The curious remark noticed above will not mislead any reader of the book; and the fancy is after all one in support of which occasional utterances of Bruno himself can be cited. His antipathy to Calvinism was even greater than to Catholicism—or he thought so; and this made him sometimes apparently take the side of that which at any rate could not be called a new fanaticism. In a

figure of his own, the new sects are the serpents with which "swarmed once the soil bedropt with blood of Gorgon"; the ancient Church is the severed head.

The general view of Bruno's philosophy and of its development set forth in the second part of the book seems to me perfectly sound; and there is hardly anything to which exception can be taken in detail. In one passage, however, the shade of expression with reference to Bruno's Copernicanism is wrong. The Copernican theory of the solar system is described as "holding him fast to the one all-important fact that the earth is not the centre of the universe but one of its humblest members" (p. 151). It ought to have been noted that this was not Bruno's way of looking at the matter. In his own view, he was destroying the mediæval conception which made the earth the "dregs of the universe," sunk down to the bottom through its inherent gravity; and was substituting for it a cosmic theory according to which the earth was a star of no less divine substance than the rest. Another slight mistake is where surprise is expressed (by a note of exclamation) that Bruno should describe Averroës as "ignorant of Greek" (p. 136). In this he was not only quite right but had escaped a common error of the learned in his age, who thought Averroës himself had translated Aristotle (compare Renan, *Averroës et l'Averroïsme*, chap. i., § 6).

The real and great originality of Bruno amid all his apparent eclecticism is effectively brought out. "His imagination runs riot in the pursuit of allegories, metaphors, similes from mythology. . . . So far was this enormous mass of material from blocking up the spring of originality in his mind, however, that the ideas in which he may be said to have 'anticipated' modern thought are innumerable. No doubt, in many cases, they came from the earlier Greek philosophers whom he chiefly studied; but Bruno invariably gives them a connexion with his own theory, such as precludes us from taking his restoration of them for a happy chance" (p. 107). The characteristic of his speculative thought generally is found in the union of idealist intellectualism with the strongest bent towards a naturalistic interpretation of things (p. 321). This is found equally in his ethical philosophy; where he combines the new-born modern regard for fulness of life with the intellectual aspiration of his nearest Greek predecessors (pp. 264-265). His continuity with those predecessors, and at the same time his difference, is seen especially in his conception of the quantitative infinite, which he deduced from their principles where they had not deduced it themselves. Mr. McIntyre has succeeded in bringing out, in his exposition of this conception, Bruno's genuinely logical defence of it against objections. Of Bruno's specially mathematical philosophy he does not profess to give a complete account; but, as far as he has gone, he has performed with care a difficult task and has set forth the result with great clearness. In geometry the theory was a kind of atomism applied

to space. Geometrical figures are to be conceived as made up of physical *minima*. These, in all their kinds, are innumerable. Instead of a finite universe with a space each portion of which is infinitely divisible in virtue of its continuity, we have thus an actually infinite universe made up of real indivisibles. This theory of discrete physical *minima* led of course to errors in geometry. Bruno's erroneous line of thought here, it may be observed, recurred in Berkeley, and again in Hume, who, however, abandoned it later.

The atomic and monadic side of Bruno's philosophy, which is apt to be somewhat neglected in comparison with his cosmical and monistic conception, gets due attention. The author, indeed, is inclined to regard it as the most important side historically. He finds, however, that Leibniz, in working out similar views, did not come under the influence of Bruno. It is remarkable that their doctrines present a similar difficulty as a whole. "How Bruno understood the relation of the finite human soul to the divine mind, or to the soul of the universe, it is not easy to determine, and it is doubtful whether he ever made it clear to himself" (p. 307). Might not the same be said of Leibniz? Their positions, however, are still in a manner antithetic. Bruno had attained most clearness about the universal, Leibniz about the individual reality. Thus it has always been felt that Bruno's affinity is with Spinoza among his successors, and in this Mr. McIntyre agrees. Indeed he adopts the position that Spinoza, in the earlier phase of his philosophy, was actually influenced by Bruno. This is a point not yet settled. Perhaps the study of it might still be fruitful even if it should not lead to a decisive result as to the historical connexion.

T. WHITTAKER.

VII.—NEW BOOKS.

The Philosophy of Auguste Comte. By L. LÉVY-BRÜHL, Maitre de Conférences de Philosophie à la Faculté des Lettres de l'Université de Paris; Professeur à l'Ecole libre des Sciences politiques. Translated by KATHLEEN DE BEAUMONT-KLEIN.

THE reader of Prof. Lévy-Bruhl's volume entitled *The Philosophy of Auguste Comte* will be convinced that the work is the outcome of the author's sympathetic understanding of Comte's complete system.

M. Lévy-Bruhl has risen to the plane of the true historian who seeks, not only to grasp the fundamental principles of the system, but also, from the higher point of view of criticism, to discriminate between what is of enduring philosophic interest and what is only of momentary importance. With this end in view, the author has confined his attention to the 'Cours de Philosophie Positive' and excluded the 'Politique Positive'; for, though Comte considered the former to be merely the preliminary part of his work—posterity is finding in it the most fruitful and living thought.

M. Lévy-Bruhl follows, in the main, the order of treatment set forth in Harriet Martineau's translation, but his desire to conform to historical reality has led him to apportion out the space differently. Even in this he is merely extending the process of selection begun in that masterly work. For instance, he wisely refrains from giving a detailed account of Comte's examination of the particular sciences, for what our philosopher had to say of these, which fifty years ago were in comparative infancy, could hardly be taken to be what he would think to-day.

M. Lévy-Bruhl puts the reader in possession of the general point of view of Comte's system and so enables him to view each principle in its true perspective. That this must have demanded most careful study on the part of the author is realised when one recollects that Comte's writings are in the form of a series of lectures, extending over a period of some twenty years.

In the introductory note Mr. Frederic Harrison remarks: "Prof. Lévy-Bruhl writes as a student but not as an adherent of Auguste Comte". The volume is, nevertheless, more than an exposition, in the ordinary sense of that term, for it contains the replies to those adverse criticisms of the system directed by Mill, Littré, Spencer and others. Since the replies are, for the most part, what Comte himself said in widely separated parts of his voluminous writings, the criticisms are thereby shown to be the result of insufficient study of the system. Perhaps it is in some of these replies that M. Lévy-Bruhl supplies the student with the most fundamental insight of the Positive philosophy. As, for instance, where he establishes the unity of Comte's thought by showing that the positive spirit demands a combination of the objective and subjective

methods. Through the latter alone can the mind apprehend those encyclopædic laws which are to unify that wider whole of which the particular sciences are merely members. So long as Positive philosophy is in the process of formation it must go from the world to man. Once the Positive method has become universal, when Sociology is established, the demand for logical unity makes it necessary to take man for the centre. "Referred to humanity," says Comte, "our real knowledge tends towards entire systematisation."

Finally our author endeavours to show that this Positive system occupies a natural position in the evolution of philosophy. It does not oppose but rather "transposes" previous doctrines. In the 'conclusion,' the author gives a list of these transpositions, which, though perhaps on some points unconvincing, serve to illustrate that, in his continual effort to substitute the relative point of view for the absolute, Comte yet remains faithful to his maxim, "We only destroy what we replace".

The English-speaking public will welcome Kathleen de Beaumont-Klein's most faithful translation, since it puts within their reach M. Lévy-Bruhl's valuable exposition of Comte's voluminous writings.

MAUD LIGHTFOOT.

Human Nature and the Social Order. By CHARLES HORTON COOLEY. New York: Charles Scribner's Sons, 1902. Pp. 413.

Mr. Charles Horton Cooley, according to the title page of this volume, is Instructor in Sociology in the University of Michigan, and unlike some modern American writers on social subjects he puts forward his ideas in a simple lucid idiomatic English style. One great recommendation of Mr. Cooley's book is this: that it is always easy to know what his ideas really are and what he is driving at. On this account alone and apart from its other merits Mr. Cooley's volume is readable from beginning to end. The central idea of Mr. Cooley's work is not new, but it is put before the reader with unusual clearness, sanity and precision. This central idea is that Society and the Individual are different aspects of the same thing, and that we misunderstand both Society and the Individual when we look at them apart from each other or set them up in opposition to each other. We can only know what an individual is when we consider him as a member of a social whole, and, on the other hand, we can only know what society is when we consider it as composed of concrete individuals. Both the individual and society are abstractions when considered apart from each other: the only reality in Mr. Cooley's opinion is human life, which may be considered, he says, either in an individual aspect or in a social, that is to say, general aspect: but is always as a matter of fact both individual and general. The antithesis of society *versus* the individual is in Mr. Cooley's view false and hollow whenever it is used as a philosophical statement of human relations. It follows from this that the political doctrines of socialism and individualism are both resting on a false conception of life, the only difference between them being that the socialist believes the collective force should win whilst the individualist holds the opposite opinion. Mr. Cooley's view is that neither should win, that individualism and sociality are complementary aspects of the same thing, and that the true line of progress is from a lower to a higher type of both, not from the one to the other. This higher type of human life is to be attained, not by the suppression of certain faculties and the exaltation of others, but by the harmonious development of all. On some points we should like if space permitted to break a lance with Mr. Cooley, but although we may be

inclined to differ from him on certain questions, we are glad to admit that he has written an interesting and stimulating book.

W. D. MORRISON.

The Mysteries of Mithra. By FRANZ CUMONT. Translated by THOMAS J. McCORMACK. Chicago : The Open Court Publishing Company.

Prof. Cumont is well known by his large work *Textes et monuments figurés relatifs aux mystères de Mithra*, and this volume, he explains, is a reproduction of conclusions printed at the end of the first volume of that work. M. Renan declared that Mithraism, but for Christianity, would have been the religion of the West. At the beginning of the Christian era Mithraism suddenly appeared in the valleys of the Danube and the Rhine, and even in Italy ; and while it is true to say that it disappeared before Christianity, it is also correct to state that it was succeeded by Manicheism. For a time, however, it seemed as if Mithra would conquer ; and for the student of history and of ethics a study of Mithraism is not without interest.

According to Prof. Cumont the success which Mithraism gained was due, in great part, to "the vigor of its ethics, which above all things favoured action". "The conviction," he says, "that the faithful ones formed part of a sacred army charged with sustaining with the Principle of Good the struggle against the power of evil was singularly adapted to provoking their most pious efforts". In regard to doctrine the explanation is offered that "the worship rendered to the Planets and to the Constellations, the course of which determined terrestrial events, and to the four elements, whose infinite combinations produced all natural phenomena, is ultimately reducible to the worship of the principles and agents recognised by ancient science, and the theology of the Mysteries was, in this respect, nothing but the religious expression of the physics and astronomy of the Roman world".

Le sentiment religieux en France. Par LUCIEN ARRÉAT. Paris : Félix Alcan, 1903. Pp. vi, 158.

As the author himself remarks, the best part of this volume is the appendix, in which he has printed a selection of fifteen answers to a questionnaire respecting the state of religious sentiment in France. Such documents can never fail to be interesting, and, when the questions are skilfully put and the answers judiciously interpreted, they may yield much instruction. Furthermore it is growing very plain that the era of the merely speculative and *a priori* attitude towards ethical, religious and æsthetic problems is past, and that their profitable treatment presupposes the collection of extensive statistical data in order to attain a knowledge both of the range and character of the varieties of sentiment and of their qualitative frequency in the various social and national environments. In other respects, however, M. Arréat's book is disappointing. The general discussions which occupy most of it are slight in texture and deficient in exact data. He does not even state the wording of his questionnaire, and no figures are given either as to the number of the answers which form his inductive basis, or as to the distribution of the various types. The chief conclusion drawn is that while asceticism is apparently growing rarer, it would be hazardous to assert that the religious sentiment is either weakening or maintaining its strength. In view of this difficulty of interpretation it would have been well if M. Arréat had given us fewer reflexions and more documents.

F. C. S. SCHILLER.

Psychology and Common Life: A Survey of the Present Results of Psychical Research with Special Reference to their Bearings upon the Interests of Everyday Life. By F. S. HOFFMAN. New York and London: G. P. Putnam's Sons, 1903. Pp. viii, 286.

This little volume is made up of ten popular essays or lectures on the topics: Brain and Intelligence, Attention, Memory, Hallucinations, the Mind in Sleep, Hypnotism, the Mind and Disease, Christian Science and the Lourdes Miracles, Mind-reading and Telepathy, and the Secondary Self. It belongs to the class of books that is the despair of the professional psychologist. Regarded from the scientific standpoint, it is utterly unsystematic; it abounds in minor inaccuracies; it is uncritical; it is not always even grammatical. Its reading has been grievous to the present reviewer.

Only—the book is evidently not meant for the psychologist. It is intended to arouse an interest in psychology among the educated public at large. The author is making an honest effort to give a readable account of certain aspects of psychology that he deems of especial interest to the layman. It is a pity that he does not know more, and that he has not the habit of accuracy; but his work may, after all, do what it aims to do, and so pave the way for the reading of better books later on. At any rate, it is a work about which the layman's judgment should be consulted equally with the psychologist's.

E. B. T.

Fatigue. By Prof. A. MOSSO. Translated by MARGARET DRUMMOND, M.A., and W. B. DRUMMOND, M.B., C.M. London: Swan Sonnen-schein & Co.; New York: G. P. Putnam's Sons, 1904.

This translation of Mosso's well-known book on *Fatigue* has been not only sanctioned but revised by the author. It is an improvement on the original in that exact references are given to passages quoted from other writers. The rendering is admirably done. We have noted only one passage where the translation might have been improved by keeping more closely to the original.

“Je me suis abîmé par sept années d’études folles et désespérées” is really not the same as “I insanely destroyed my health by seven years' study”. It was not the fact of studying but the foolish and rash method of study which did the harm.

JOHN EDGAR.

Le Goût (Bibliothèque internationale de psychologie expérimentale). By L. MARCHAND. With 33 Illustrations. Paris, 1903. Pp. 328. Price 4 francs.

This book deals very largely with the physiological aspect of the subject. It opens with an introductory chapter wherein the author quotes approvingly the view that “the specific sensibilities of hearing, vision, taste and smell have been evolved from tactful and thermal sensibility”. The treatment of the question of specific nervous energy (p. 79 ff.) and the chapter entitled “Taste from the psychological point of view” offer further examples of such crudities. Of the twelve remaining chapters nine are devoted to the morphology and nervous connexions of the organs of taste. The best-written parts of the book are those dealing with the minute anatomy of the tongue. Here the author evidently finds himself on familiar ground, and is less reticent in criticising dis-

cordant views and in advancing his own than elsewhere. He states (p. 54) that taste buds are rarely met with on the soft palate and epiglottis, where nevertheless sensibility for flavours exists, and that they are far less frequent at the tip and sides of the tongue where sensibility for sweet, salt and sour tastes is most acute, than at the base of the tongue where the sensibility for bitter tastes is keenest. And he suggests that the taste-buds are affected only by bitter substances, while the sensations of sweetness, saltiness and sourness are developed in other end-organs of less complex character. This suggestion, if well grounded, is worthy of attention, for the bitter sensation differs in several respects from the other sensations of taste. In the first place, it takes longer to develop and persists for a longer time. In the second place, it is the only sensation which can be produced by mechanical stimulation of the tongue—at its base. This the author apparently denies (p. 130). And thirdly, the bitter taste does not produce contrast-sensations with the other tastes, as the latter do among themselves. The author makes no reference to Kiesow's work in this and many other directions which have considerable psychological interest. He devotes over fifty pages to the perplexing controversy as to the path of nervous impulses from the tongue to the brain, but his few lines of summary do little to clear up the difficulties. We note several instances of mis-spelling in the names of foreign writers.

C. S. M.

La Fonction du droit civil comparé. Par E. LAMBERT. Paris: Giard et Brière, 1903. Pp. 927.

M. Lambert is a professor of the history of law at the University of Lyons, and the present volume is a learned and elaborate work on the value of a scientific study of comparative legislation. It contains a good many sociological observations which would be interesting to the readers of *MIND*, but it is in the main a book for scientific students of law.

Gesammelte Aufsätze zur Philosophie und Lebensanschauung. Von RUDOLF EUCKEN. Leipzig, 1903. Pp. 242.

These essays aim at illuminating special problems and personalities from the standpoint which the author has endeavoured to make clear in his *Kampf um einen geistigen Lebensinhalt*, 1896, and in his *Wahrheitsgehalt der Religion*, 1901. Any one making his first acquaintance with Prof. Eucken will form a just idea of his philosophy from the essays on "The Vindication of Ethics," on "The Germinating Powers in the Moral Life of To-day," and on "The Relation of Philosophy to the Present Religious Movement". Others will be more interested in the study of those thinkers, Goethe, Fichte, Fröbel, Steffensen, etc., intercourse with whom has helped to fashion the *Lebensanschauung* which is sometimes felt rather to overshadow than to illuminate the various subjects. There is an appendix in which a very gloomy view is taken of the present condition of philosophical instruction in Germany, and suggestions are made for its improvement.

Less known in this country than he deserves, Prof. Eucken has many in Germany to whom his work appeals as both original and stimulating. The latter it certainly is, but it seems to exhibit, along with excessive dependence on and confidence in the work of Kant, something of a revision to the pre-Hegelian Romantic, and like it to fall short of conviction because lacking a secure foundation in the philosophy of Nature.

The keynote of Prof. Eucken's position is the central importance of the ethical problem, which may be said to become with him, as with Steffensen, cosmical and super-historical. While speaking with profound admiration of the classical period of German literature and philosophy, he considers the glad, restful assurance of its *outlook*, which found its best expression in Krause's term Panentheism, to be past recall. Our modern life is rendered hideously discordant because of the "*erbitterte Kampf zwischen zuständlichem und gegenständlichem Leben*," and on us lies the task of effecting a synthesis which, while fully recognising the actual complications and contradictions of life, gets beyond them to a depth in which subject and object relinquish their enmity, man and cosmic nature unite in a common labour. At present the antagonism within the work of the spirit is rendering man a mere co-existence of soulless toil and high-pitched but empty reflexion. Our culture possesses no world of thought embracing the human soul, no supreme ideal of life; it cannot give morality a form adequate to its universal nature. The sharpness of the conflict is shown by the discrepancy between the ideals of Religion and of Work. By the one man's emotional nature is passionately excited and he is taught to regard himself as the highest end in itself; by the other it is tuned as low as possible and he is treated as a mere means for a soulless process of culture. As for Work, the most thriving of our ideals, all its triumphs have not prevented the workers themselves from becoming smaller, shallower, more discontented, as increasingly minute specialisation allots to the individual a mere fragment of some special aspect of external reality as his life's work, engrossing his whole attention, while leaving his inner nature to atrophy into a dead and empty background. We are beginning to feel the want of proportion between the feverish activity of Work and its result in happiness and spiritual life; to recognise the danger of being transformed into highly complicated machines, of being mastered by an externally directed activity devoid even of satisfactory material results. The claim for the emancipation and development of the individual is the complement of, and the reaction from, the social idea, in itself an effort to sublimate the ideal of Work and bring unity into our moral endeavour, but fatally neglectful of inner problems. Now, it is possible to take up as critical an attitude to a purely social morality as do its neo-romantic and sophist opponents, and yet, at the same time, hold in honour a more universal idea of morality. Such heroes of the moral idea as Plato and Kant teach us that morality means more than working for the benefit of society, that it is, above all, a personal matter for the man himself, an oppressive problem of his own being, a desire to overcome an intolerable inner discord, and attain a different fundamental relation to reality. It is an effort to assert and realise one's spiritual being as against the indifference and opposition of the world, which, apart altogether from professional pessimism, it is impossible to reverence as the sacred work of pure reason. And why should we dread the free creative activity of a rational being, the effort to unfold one's unique nature and express it in every action? Prof. Eucken quotes the saying of Fröbel, "*Der Mensch schafft ursprünglich und eigentlich nur darum, damit das in ihm liegende Geistige, Götliche sich ausser ihm gestalte*," and shows how in Goethe the artist and thinker knew himself to be at the centre of reality, carrying the work of nature further. He offers an impressive synthesis of subject and object, a union of freedom and truth. It is only where it seeks to overcome the contradictions of these that our age reaches a creative height.

It will be seen that Prof. Eucken would not accept Hegel's dictum that "*der Mensch ist die Reihe seiner Handlungen*". What a man is more

than his contribution to the work of culture he admits to be obscure; but it would not be so impossible as it is for him to be sublated in his Work, if there were not in him a core superior to it, which a vital metaphysical instinct forces him to assert. If the subject does not succeed in developing from within to a world, a universal spirituality, making it superior to every external world and to all work, then its cause is lost and the whole modern movement a grandiose mistake. In the microcosm we must discover a macrocosmic life; the subject must appear as the point of emergence of a new reality; the spiritual life must rise above its present conflict to union with divine Being, and our world be known as the abode of spiritual powers. But this requires a clear separation of the creative life of the spirit from the empirical life of the soul. As a creature of nature, man, into his very soul, is a product of her necessity; alone the moral sphere shows, in form and content, hyperempirical origin and powers. It is only the unseen order to which man as a spiritual being is related that demands his independent co-operation and gives him the power to rely upon his own personality, and, if need be, oppose the whole world. This spiritual ground of our life, to-day obscured, must be illumined and developed, and that can never result from natural circumstances; it depends, as ever, on the free action of man.

Prof. Eucken is very much in earnest, and says what he has to say forcibly and strikingly. To most his philosophical speculations must appear to rest on a very insecure basis and to evaporate in mysticism. No doubt he awaits the "testimony of the spirit and of power and fruitfulness for life" with confidence. We, who do not quite share this confidence, yet follow him along his somewhat unusual philosophical route with interest and profit.

DAVID MORRISON.

Die Soziale Frage im Lichte der Philosophie. Von Dr. LUDWIG STEIN; Zweite Auflage. Stuttgart: Verlag von Ferdinand Enke, 1903. Pp. xvi, 598.

If we may use a German word in description of this work we should say it is essentially *grossartig* in its conception, and indeed in its dimensions. There is first an introduction about the social question in general, and philosophy and sociology and evolution and history, and the relation of all these to each other. Next, part i. deals with primitive forms of social life and the historical development of the principal social categories. In part ii. we have a history of social philosophy from the time of the Greeks downwards. And, finally, part iii. develops the author's own system of social philosophy.

This system is characterised by the fact that the author accepts quite uncritically and unreservedly the popular antithesis between Altruism and Egoism, and thus shuts himself off from the possibility of any really philosophical solution to the problems of social life. At best it can be but a compromise, an equilibrium, between the interests of the individual and those of the race; and inasmuch as the interests of the race are to his mind paramount, progress consists in putting heavier and heavier shackles upon individuality. Every law, every social sanction, is regarded as a limitation only; the possibility of its being a positive aid to the development of the individual does not suggest itself; hence he arrives at the conclusion that *Unser ganzes Kultursystem ist letzten Endes ein Zwangssystem*. Thus the only expedient for the social philosopher is so to educate people through religion, morality, art, etc., that they will

accept the claims of the race as predominant, and relinquish their individual freedom without too much regret.

Dr. Stein is widely read, but shows little practical knowledge of the social difficulties for which he offers remedies. As usual the State is to intervene and achieve at every point; to provide work for the unemployed, to ensure an "Existenz-minimum" to all, and even to find remunerative intellectual employment for the "educated proletariat"; but we find no consideration of the serious economic difficulties involved in such a policy. This intervention of the State would not, he thinks, be necessary if the workmen on the Continent could achieve as much through "self-help" as the English working-men; but instead of considering the significance of this phenomenon, he brushes it aside with what is surely in this connexion a trivial remark, that the Englishman's talent for organisation is inherited and cannot be inoculated into the Continental working class.

How far the author's representation and interpretation of social conditions and movements in Germany are trustworthy it is difficult for a foreigner to say; with respect to England he has hardly succeeded in understanding what are now the really important aspects of social and economic life.

H. BOSANQUET.

Macht und Pflicht. Eine natur- und rechtsphilosophische Untersuchung. Von ANATHON AALL, Dr. Phil. Leipzig: O. R. Reisland, 1902. Pp. x, 341.

The name of Dr. Aall is already favourably known for his work on the history of the idea of the Logos. His present book is of a very different character. It is an attempt to trace the connexion between the ideas of power and duty—an interesting subject, and one that has already been approached by different writers from very different sides. One may recall, for instance, the important part played by the conceptions of *δύναμις* and *ἐνέργεια* in the Ethics of Aristotle, the conception of power in the system of Hobbes, Carlyle's constant iteration of the doctrine that right is might, Nietzsche's gospel of force, and the emphasis laid by most idealistic writers on the realisation of human faculty. All these seem to involve, in different ways, the idea that there are certain active powers inherent in human nature, and that the working of these out is the basis of the moral life. It would be interesting to try to work out thoroughly, in the light of modern scientific thought, the implications of this idea of human power, and to show exactly how the moral life is to be interpreted by means of it; and this appears to be the task that Dr. Aall has set for himself. In contrast to the Kantian dictum "Thou oughtest, hence thou canst," he urges that the 'ought' should rather be regarded as resting ultimately on a 'can'; and that all human duty may best be interpreted as the call to realise possibilities. The way in which this is developed is both learned and interesting; yet the book as a whole hardly appears to achieve the object at which the author aims. There seems often to be a want of definiteness and logical cogency in the views that he puts forward. It is difficult to gather precisely what he understands by power, and how exactly he conceives the idea of duty to emerge from it. The impression left in the end is that he has suggested a number of interesting points, rather than that he has fully thought out a coherent doctrine. The phrases that he gives as motto aptly sum up the general spirit and purport of the work: "From him who can do something, much is required; from him who can do much,

the utmost is expected". It is a book 'to be chewed and digested'; and one can only regret that it has not been more skilfully carved.

J. S. M.

Geschichte der Strafrechtlichen Zurechnungslehre. Von RICHARD LOENING, ord. Professor der Rechte zu Jena. Erster Band: *Die Zurechnungslehre des Aristoteles.* Jena: G. Fischer; London: Williams & Norgate, 1903. Pp. 359.

This is the first volume of a work which is to embrace the whole history of the doctrine of criminal responsibility. In recent years a great deal of discussion has taken place as to the nature and extent of criminal responsibility, but Prof. Loening considers that the discussion so far has led to no satisfactory results. In his view the only way to arrive at a satisfactory solution of the problem is by an examination of the history of the current doctrine of criminal responsibility. The roots of this doctrine go back to Aristotle whose conceptions of moral responsibility were transferred by jurists into the domain of criminal law, and exercised a far-reaching influence on judicial doctrine. The present volume then is an exposition of Aristotle's doctrine of moral responsibility looked at in all its aspects—an exposition Prof. Loening tells us which has never been attempted before. According to Prof. Loening Aristotle's doctrine of responsibility stands in the closest connexion with his whole system of philosophy and cannot be understood without constant reference to it. This fact leads Prof. Loening to commence his exposition with an account of Aristotle's psychology and ethics, and in the treatment of these subjects he is compelled at many points to part company with the accredited expositors of the Aristotelean system. Aristotle's conception of the Good he considers has not hitherto been properly explained by modern scholars, and he mentions several other Aristotelean ideas which he considers have been misinterpreted by his predecessors. One great merit of the book is that the author always gives the sources on which his reasoning is based and it is possible at every step to check his conclusions by a reference to the materials on which they rest. It is safe to say that Prof. Loening's work is a real and conscientious contribution to our knowledge of Aristotle.

W. D. MORRISON.

I Dati della Esperienza Psichica. Per FRANCESCO DEL SARLO. Florence, 1903. Pp. 425.

The object of this work is to answer the question whether psychology should take rank as the fundamental science of philosophy, and as such giving the key to all knowledge, or whether it should be co-ordinated with the other branches of natural knowledge, with such sciences as physics and chemistry, having for its subject-matter the co-existences and successions of a particular class of phenomena called states of consciousness, and studying them according to experimental methods the same as those applied to the phenomena of the visible world.

As might be expected from his known spiritualistic opinions, Prof. Del Sarlo decides against the latter view, against the positivist method so much in vogue at the present day. He divides its adherents into three schools: the associationists, represented by Bain and Mill; the psycho-physicists, represented by Wundt; and the evolutionists, represented by Herbert Spencer and his successors. Associationism is disposed

of with little difficulty, having been sufficiently discredited by the criticisms of the experientialists themselves—criticisms of which a lucid summary is given in these pages. Nevertheless, Prof. Del Sarlo argues, a little mischievously, that if psychology is to be studied according to the methods of physical science, associationism under one form or another is the principle on which it must inevitably be constituted. For our systematised knowledge of the objective world simply amounts to a grouping of its phenomena under laws of co-existence and succession; and it is such laws that the associationist undertakes to ascertain. Wundt's psycho-physicism professes indeed to supply us with a new and higher principle, under the name of Will, by which the chaotic contents of consciousness are reduced to order, guided into particular channels, and wrought into permanent systems of conduct and belief. But by discarding the doctrine of an immaterial soul as the unifying centre of psychic life, Wundt leaves this so-called Will without any fulcrum whence to exercise its control. It is in fact no more than a phenomenon like another, a mere psychic incident invested with a spurious personality involving powers of foresight and selection such as belong rather to intellection than to volition. Finally, evolutionism accounts for all manifestations of mind from the lowest to the highest as modifications of elementary sensibility organised by selection and heredity, as the result of an age-long struggle for existence. But—besides not explaining the initial fact of sensibility—this method has the disadvantage of approaching the study of consciousness through the study of its material substratum about which we know considerably less than we do about mentality itself. Indeed we may expect self-consciousness to throw more light on the nervous processes than it receives from observations made on them.

After this preliminary survey the author proceeds to a review of what has actually been done towards collecting and analysing the data of consciousness on what he calls the naturalistic method; and the result at which he arrives is that modern psychology has totally failed to account for the higher mental developments, for the way in which our knowledge of reality is acquired, for the way in which our actions are directed towards rational ends. After all the resources of introspection and experiment have been exhausted we are left with nothing but a series of irresoluble states of consciousness, each qualitatively unique, unconnected with one another, and offering no sort of resemblance or analogy with the objective world which they represent and reveal. Logically the whole of knowledge may be analysed into its component parts, and its evolution may be exhibited as the compounding and recompounding of simple elements into organic wholes. But the processes themselves of perception, comparison, judgment, and reasoning absolutely defy analysis; and all attempts to account for them as mechanical processes are accounted for come to no more than the substitution of a description for an explanation. And the same criticism applies to our ideas of time and space. It is possible, particularly as regards space, to enumerate the simple experiences by which they are suggested and the conditions under which the final synthesis is accomplished. But the synthesis itself is a spiritual act, amenable only to the laws of spirit.

Those laws, according to Prof. Del Sarlo, involve ideas of value and purpose which naturalism ignores. The whole evolution of consciousness, whether intellectual or volitional, is directed towards an end and cannot be rightly interpreted except by the teleological method. There are tendencies at work among ourselves which no doubt will find their account in such a mystical solution of the psychological problem; and

Prof. Del Sarlo's work may be recommended as a valuable auxiliary to their professors. But whether the cause of sound knowledge can be served by what is almost undisguisedly a retrogression to the standpoint of Aristotle may be questioned. A closer consideration of this important treatise must be left to psychological experts, who will find much to interest them in the acute criticism brought to bear by Prof. Del Sarlo on a very extended course of reading in the most modern literature of the subject. I must unhappily add that it is conveyed in a style so abstract, dry and repellent as to make the book almost unreadable except by an enthusiast or a drudge.

A. W. BENN.

L'Istituto Famigliare nelle Società Primordiali. By GIOVANNI AMADORI-VIRGILI. Bari: G. Laterza & Figli, 1903. Pp. 266.

One of the most difficult problems confronting the student of human institutions is the origin of the rules regulating marriage. It is a subject which was raised about forty years ago by McLennan in his work on Primitive Marriage, and in spite of the fresh facts which have accumulated since that time, and the fresh speculations which have taken place concerning the interpretation of these facts, the character of primitive marriage is still a subject of dispute. Are the rules relating to marriage which we now find in existence among the lowest class of savages the development of an antecedent condition in which the solitary male as Darwin supposed was at the head of a group of females, or were all marital relationships preceded by an antecedent period of promiscuity? If marriage relationships were preceded by a period of promiscuity how did these relationships gradually arise? If, as Mr. Atkinson in his recent book on Primal Law supposes, the instinct of sexual jealousy has always prevented sexual promiscuity in the human group, how have marriage laws developed on the assumption that the primæval family was a little group of women and children with one man at the head of it and a number of younger men hanging on its outskirts? These are problems which it is to be feared will never be solved by the production of facts. The origin and early development of marriage will always remain in the nature of a hypothesis and the most plausible solution will always be more or less of an ingenious guess. A recognition of these facts does not prevent us from giving a cordial welcome to Sig. Amadori-Virgili's excellent little book on the Family in Primordial Society. Sig. Amadori-Virgili has made a very careful and comprehensive study of almost all the best literature on the subject, and his work is much more than a mere compilation. At the same time it does not profess to be a complete treatment of the subject. It is rather an exposition of the general lines and principles on which the subject should be treated. Among the principles which the author considers should be laid down as the basis of investigation into the origin and development of the family, he mentions a rational limitation of the ethnographic method, some criterion for the appreciation of positive facts, and a due recognition of all the antecedent conditions producing these facts. The first part of the book, consisting of three chapters, is devoted to an exposition of the author's method of treatment. His principles are set forth with great clearness and cogency, and future writers on the family will have to take account of them. The second part is an application of the author's method to an examination of the primitive forms of family life. Sig. Amadori-Virgili's book is to be cordially commended to the English reader as the work of a well-informed, painstaking and scientific thinker.

W. D. MORRISON.

Saggi di Filosofia Sociale e Giuridica. By GIUSEPPE CIMBALI. Roma: Fratelli Bocca; and London: Williams & Norgate, 1903. Pp. 279.

Giuseppe Cimbali is a well-known professor of law in the University of Rome, and the present volume is a collection of essays which he has contributed during the last ten years to Italian Reviews. He tells us that he considers these essays to stand in the same relations to more elaborate works, as torpedo-boats do to men-of-war: that is to say, they are of small size and seem of little moment, but are not on this account of less value to an author in the controversies in which he finds himself from time to time engaged. Prof. Cimbali's essays are devoted to a discussion of contemporary legal and social problems and, although somewhat wordy in places, are very good specimens of modern Italian polemics. The opening essay is a criticism of contemporary social materialism and an exposure of the fallacies which Prof. Cimbali considers to underlie its assumptions. Other papers are devoted to discussions of Herbert Spencer's philosophy; to a consideration of the relations between the Papacy and Socialism; to the Evolution of Law; to the struggle of classes and the development of civilisation; to civil law and the working classes, and to the new conceptions of penal law enunciated by such writers as Lombroso and Ferri. The essays are so varied in character and subject that it is impossible in this brief notice to examine them in detail. But they may be commended to all who take an interest in the idealist side of modern Italian thought. An article of special interest is the essay on Tommaso Natale as a precursor of Beccaria: in this essay Prof. Cimbali shows that many of the most characteristic thoughts of Beccaria were anticipated by his little-known compatriot Natale.

W. D. MORRISON.

RECEIVED also:—

A. E. Taylor, *Elements of Metaphysics*.
 John Theodore Merz, *A History of European Thought in the Nineteenth Century*, vol. ii., Blackwood & Sons, 1903, pp. xiii, 807.
 Rev. Walter McDonald, *The Principles of Moral Science*, Dublin, Brown & Nolan, 1903, pp. xi, 230.
Journal of the China Branch of the Royal Asiatic Society, vol. xxxi., 1896-97.
The Hibbert Journal, January, 1904.
 William Hallock Johnson, Ph.D., *The Free-Will Problem in Modern Thought*.
Annual Report of the Smithsonian Institution, 1902.
 Noralie Robertson, *Mrs. Piper and the Society for Psychical Research*, translated from the French of M. Sage, with a preface by Sir Oliver Lodge, London, Brimley Johnson, 1903, pp. xxiv, 187.
 Prof. O'Shea, *Education as Adjustment*.
 Havelock Ellis, *A Study of British Genius*.
 von Nikolaj Lossikij, *Die Grundlehren der Psychologie vom Standpunkte des Voluntarismus*. (Deutsche von E. Kleuker.)
Beiträge zur Psychologie der Aussage, Heft ii.
Beiträge zur Psychologie der Aussage, Teil i.
 Adolf Bastian, *Die Lehre vom Denken*.
 Adolf Bastian, *Das logische Rechnen und seine Aufgaben*.
 Dr. Erwin Ackerknecht, *Die Theorie der Lokalzeichen*.

Ossian's *Lebensanschauung*.

Dr. Salby Daiches, *Ueber das Verhältnis der Geschichtsschreibung D. Hume's zu seiner Praktischen Philosophie*.

Dr. Max Ersturger, *Untersuchungen über die Bedeutung der Deszendenztheorie für die Psychologie*.

Max Dressler, *Die Welt als Wille zum Selbst: eine Philosophische Studie*.

Gustave Rodrigues, *L'Idée de Relation: Essai de Critique Positive*.

VIII.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. xii., No. 4. **F. J. E. Woodbridge.** 'The Problem of Metaphysics.' [If we set out, as metaphysicians, upon the quest for the definition of reality, we come in order upon the concepts of individuality, continuity, purpose, potentiality, chance. "The complete definition of these concepts would be a very close approach to the complete definition of reality." They are to be regarded as ultimate and underived; yet, as a matter of fact, they exist together and supplement one another. Reality is thus "a term which covers ultimate differences in supplementation". To say this is not to elevate the imperfections of knowledge into a test of the constitution of the real, but simply to admit that "if there are certain conditions which must be fulfilled in order that knowledge may be knowledge, it is the constitution of reality which determines these conditions".] **J. H. Hyslop.** 'Problems of Science and Philosophy.' [A criticism of Comte's serial and Spencer's logical method of classifying the sciences, and an attempt at "a logical and a serial classification of the sciences or problems of human thought and action that will recognise both territorial and relational facts at the same time". There are three great groups of sciences: the phenomenological, the ideological, and the aetiological. The existing sciences and spheres of speculation are arranged, serially and logically, under these headings; the arrangement is confessedly ideal, but comes as close to actual fact as the use of words permits.] **F. Thilly.** 'The Theory of Induction.' [(1) What is the nature of the process called induction? "In induction we infer that because a certain thing is true of a certain case or cases, it is true for all cases resembling the others." Induction is not limited to causal relations; it is still induction if we do not understand the reasons or see the so-called necessary connexions. (2) What is the validity of the process? Induction may be proved by assuming the law of uniformity; but this proceeding is apt to land us in a circle. In the last resort, "I have no other warrant for inferring that a combination of qualities will recur than the feeling of expectation that it will do so".] **A. Gehring.** 'The Expression of Emotions in Music.' ["It is not of the essence of music to express emotions; it need convey no meanings; and its effectiveness, so far as apparent, flows entirely from the mere tones by themselves and their combinations." Expression may be used in at least three senses. It may be expression of direct embodiment, representation, denotation, content: this is merely an incidental and contingent factor in music. It may, again, be expression of indirect embodiment or connotation: this, too, is only incidental in music. It may be, lastly, an expression of parallelism, contagion, or sympathetic arousal. Here the contention of the expressionists is more plausible; music without such expression might, perhaps, be "a dry and quasi-mathematic, intellectual pastime".] **Reviews of Books.** Sum-

maries of Articles. Notices of New Books. Notes. Vol. xii., No. 5. **W. Smith.** 'The Idea of Space.' ["Discrimination is the function of space, or space is the discriminating function of thought." And since space means diversity of conscious states, and diversity is an all-pervasive principle, spatiality is characteristic of all conscious experience. As regards objectivity, space is a conscious experience, and can be nothing else. On the other hand, the universe, so far as it is knowable, is made up of conscious states, which are probably, like ours, spatial; the universe of objects has therefore spatiality; and in this sense space is objective. Some other philosophical problems relating to the space idea are discussed as corollaries to this view.] **I. King.** 'Pragmatism as a Philosophic Method.' [Statement and criticism of the doctrines of Peirce and James. "Thought is an organic part of experience as a whole, considered as an active process; and hence the question as to *mere* effects is, to say the least, unnecessary. The real point of interest is the relation of the consequences of any thought to the larger whole of experience, the sort of situations that produced the thoughts, and the function of the latter in the onward movement of the process."] **C. M. Bakewell.** 'The Philosophy of Emerson.' [There are three chief phases of Emerson's philosophical attitude: "(1) the inadequacy of every finite form of expression to reveal the fulness of truth, the inadequacy of every finite deed to realise the aspiration of the soul, the manifoldness of truth and the infinity of the soul; (2) the supreme and sole absolute reality of spirit; and (3) the absolute freedom and integrity of the individual human self, the sovereign worth of character."] **A. R. Hill.** 'Proceedings of the Third Annual Meeting of the Western Philosophical Association, held at Iowa City on April 10 and 11, 1903.' Reviews of Books. Summaries of Articles. Notices of New Books. Notes. **J. M. Baldwin.** 'Development and Evolution.' [Reply to Angell's review in the preceding number.]

PSYCHOLOGICAL REVIEW. Vol. x., No. 4. **J. R. Angell.** 'Studies from the Psychological Laboratory of the University of Chicago'—iv. **R. L. Kelly.** 'Psychophysical Tests of Normal and Abnormal Children: a Comparative Study.' [The present study shows, in general, that approximate uniformity in psychical reactions is a characteristic of the healthy consciousness, and that the abnormal child is deficient in intensity and not in extent of psychical function. Conclusions are drawn, in particular, regarding the relative development of touch and sight, and of the grosser and finer bodily movements; the rise of motor co-ordination and motor imitation; fatigue; tendency to rhythmisation; children's imagery, etc.] **J. P. Hylan.** 'The Distribution of Attention.'—i. [Discusses certain selected portions of the literature, and gives an account of experiments on the counting of simultaneous series of similar and disparate impressions; on reactions with concentration and distribution of attention, and (in part) on tachistoscopic letter exposures.] Discussion. **B. Bosanquet** and **J. M. Baldwin.** 'Imitation and Selective Thinking.' [Continues the discussion on imitation *v.* identity and difference, and the theory of selective thinking. A brief consideration of pragmatism is included in the present instalment.] **M. F. Washburn.** 'Notes on Duration as an Attribute of Sensations.' [The psychological problem of duration is fourfold. It may concern the methods of measuring the objective duration of mental process (reaction experiments); our simple consciousness of present duration; the conditions which enable an idea to represent a certain objective duration in past or future time, or the subjective factors upon which our estimates of present duration depend (time sense). Discussion, in the light of these distinctions, of duration as the temporal attribute of simple sensation.] **W. Lay.** 'Imagery.'

[Criticism of Nelson's paper on the visual estimate of time, *Psychological Review*, September, 1902.] Psychological Literature. New Books. Notes.

AMERICAN JOURNAL OF PSYCHOLOGY. Vol. xiv., No. 2. **B. R. Andrews.** 'Habit.' [(1) *The structural differences between the habitual and the non-habitual consciousness.* (a) There are differences of pattern or arrangement of processes. The processes in the habitual state are meagre, uniformly indistinct, and fused into an associative series; those in the non-habitual state bulk large, are of two degrees of clearness, distinct and indistinct, and are joined together by attentive selection and rejection. (b) The habitual consciousness has, as distinguishing process, the mood of familiarity with partly habituated experiences, and of indifferent of-courseness with those completely habituated. The non-habitual consciousness has, as its characteristic process, the experience of directed effort. Affective processes are relatively strong in non-habitual functioning, and pass to indifference under habituation. (2) *Classification.* Habits are specific, providing for the re-experience of past processes; and general, shaping present experiences in accord with past. (3) *Development.* Favouring conditions are repetition, attention, intensity of the experience, and plasticity of the nervous system.] **J. W. Baird.** 'The Influence of Accommodation and Convergence upon Perception of Depth.' [(1) Historical survey of the literature of the perception of depth, from Da Vinci to Arrer, Dixon and Hillebrand. (2) Experiments with a perfected form of Arrer's apparatus. The conclusions are, in the main, those of Wundt and Arrer. On the basis, however, of the introspective reports of an observer whose oculomotor sensations were particularly keen, and of another whose function of accommodation was impaired, the writer is able sharply to differentiate the primary criteria of the depth perception in monocular and binocular vision: the former depends on accommodation, the latter on convergence sensations. The experiments were made, not only in monocular and binocular vision, but also with both abrupt and gradual changes of distance, and secondary criteria were most carefully eliminated; the results are remarkably uniform.] **E. J. Swift.** 'Studies in the Psychology and Physiology of Learning.' [(1) *Tossing and catching balls.* The curve for learning a feat of muscular skill is concave toward the vertical axis. Practice is never steady, but always proceeds by jumps; practice with the one hand trains the other, the gain being due partly to the transference of points of method, partly to the direct co-education of symmetrical parts of the nervous system. The method was worked out by trial and error, without conscious intent. (2) *Learning shorthand.* The previous conclusions are borne out. Overstrain of attention is a hindrance; and the very fact of being tested has an inhibitory effect upon the mental processes involved. (3) *Origin and control of the reflex wink.* The wink is a complex reaction, resulting from visual and auditory impressions, and the final effect is greater than the sum of the separate effects. Moderate fatigue, attention to inhibition, distraction of the attention, etc., have little or no influence upon the reflex. Contraction of muscles remote from the eyes does not greatly reduce the reactions; contraction of muscles near the eyes, and closure of the ears, markedly lessen them. Training in control by contraction of muscles near the eyes appears to be gained by way of reinforcement of general attentional control, and is not carried beyond a certain point by continued practice. The genesis of the reflex is traced in experiments upon infants and young children.] Correspondence. [**J. Jastrow** and **E. B. Titchener** on the length of psychological papers.] Psychological Literature.

INTERNATIONAL JOURNAL OF ETHICS. Vol. xiv., No. 1, October, 1903.

A. Henry. 'The Special Moral Training of Girls.' [The necessity of physical love on both sides as a basis for the marriage relation.] **F. Granger.** 'The Right of Free Thought in Matters of Religion.' [The schoolroom is not the place for a religious propaganda.] **J. A. Ryan.** 'Were the Church Fathers Communists?' [No; not in the full sense of the term.] **G. Rebec.** 'Byron and Morals.' [The underlying strain of scepticism in Byron. Yet "his poetry is not poor but rich in bodyings forth even of positive ideality."] **J. Laing.** 'Art and Morality.' [Decadence in Art connected with decadence in Morality. The emergence of the formula 'Art for Art's sake' marks the beginning of a decline in all artistic movements both ancient and modern.] **W. R. Benedict.** 'Religion as an Idea.' ["The realities that are found in the fully developed man, whose body, mind and feelings are at their highest, are worth more to solve the mystery of the universe than any conceivable application of the genetic method."] **J. D. Stoops.** 'Three Stages in Individual Development.' [The stages (1) of organisation, (2) of a negative, exclusive self-consciousness, and (3) of reorganisation between the individual's growing sense of self and its deeper life are traced also in the development of the life of a society.] **J. H. Seuba.** Discussion — 'Empirical Data on Immortality.' [Criticism of Prof. Hyslop.] Book Reviews. Vol. xiv., No. 2, January, 1904. **W. J. Brown.** 'The True Democratic Ideal.' [The enthusiasm for democracy as such is waning; yet Democracy makes towards Humanity.] **T. C. Hall.** 'Relativity and Finality in Ethics.' [The social utility of prompt obedience to particular categorical commands given by external authority on the part of the intellectually immature. But in ethical advance we must come to a stage where, while the finality of moral obligation in general is preserved, the relativity of our ethical knowledge is admitted.] **E. Ritchie.** 'The Toleration of Error.' [Growing indifference to deviations from the orthodox. But this differentiation of belief is a mark of increasing civilisation; monotony is the mark of the savage.] **R. A. Duff.** 'Proverbial Morality.' [Its maxims are negative, unsystematic and of a not very exalted character. Yet if proverbs are often contrary they are also complementary, the one covering just those cases which are exceptions to the jurisdiction of the first.] **S. J. Barrows.** 'Crime in England.' [A note.] **J. MacCunn.** 'The Cynics.' [The emphasis laid by the Cynics upon the inward life and their consequent indifference to externals; their cosmopolitanism. But they lacked interest in speculation, and hence their morality is devoid of content.] **W. A. Watt.** 'The Individualism of Marcus Aurelius.' [The great practical defect of 'Marcus' ethics is that there is no sufficient appreciation of the fact that it is not through the retral but through the advance of the soul that personality develops.] **H. B. Alexander.** 'The Spring of Salvation.' [Is the Beautiful.] **J. H. Hyslop** and **J. H. Seuba.** Discussion. [Controversy over 'Spiritism' continued from last number.] Book Reviews.

REVUE DE PHILOSOPHIE. Août, 1903. **J. Grasset** discusses the proposal of Metschnikoff, *Essai de philosophie optimiste* (Paris: Masson, 1903), to make the moral scope and aim of all life the attainment of natural death, a death, that is to say, without disease or pain or regret, welcome to an organism which has exhausted its utmost capability of holding together: this consummation, Metschnikoff thinks, with precautions, including the extirpation of the hair, of the appendix, possibly also of the larger intestine, might be retarded for one hundred and forty years. **A. Charousset** in a second article concludes that in chemical combination there is no change of the constituent substances; oxygen in com-

bining to form water remains oxygen, and hydrogen hydrogen, the sensible properties of water being simply the resultant of the combined action of the two, according to the second Newtonian law of motion, chemistry in fact being a department of mechanics. In a dialogue, 'La foi naturelle,' **J. E. Aleux** points out that, under pain of utter vacuity of content, the mind must accept some conclusions on evidence that is not absolutely irresistible: this acceptance he calls "natural faith," and finds it to cover the primary data of morality and religion. Among the *Comptes rendus* is an elaborate exposition of Xavier Léon's *La philosophie de Fichte* (Paris: Alcan, 1902). Fichte took his philosophy to be "Kantism thought out over again by one who has quite seized its spirit." But Kant thought otherwise. Under the title, 'Éécondité de la logique,' **Louis Baille** ably maintains the scholastic view of Universal concepts.

Octobre, 1903. The most valuable article is 'L'abstraction Scolastique,' by **Comte Domet de Vorges**, an exposition clear and detailed of the working of the "active intellect" of Aristotle, *De anima*, III., 4, as conceived by the schoolmen of the thirteenth century. 'Recherches sur les signes physiques de l'intelligence,' by **N. Vaschide** and **Mlle Pelletier**, argues the general connexion of size of brain with intelligence, and of size of skull with size of brain, the skull being developed as the measure of the brain at the time when the brain is largest. The skull in fact is to the brain as the nut to the kernel. The brain of an old man shrinks as the kernel of an old nut shrinks within its hard containing envelope. 'La Biologie au Congrès de Médecine de Madrid' has this remark: "Nothing is worse for a paralytic patient than staying in bed. The patient should be taught a number of movements, which often he thinks himself incapable of making, while in fact he comes to execute them after many unsuccessful trials. Cases of muscular impotence are often cases of muscular ignorance." Interesting among the *Comptes rendus* are those on L. Weber, *Vers le positivisme absolu par l'idéalisme*; Jules de Gaultier, *La fiction universelle*; Lévy-Bruhl, *La Morale et la Science des Mœurs*; also an appreciative notice of the recent Oxford issue, *Personal Idealism*. From the first of January next the *Revue de Philosophie* will appear monthly at the same price as before.

PHILOSOPHISCHES JAHRBUCH. Band xvi, Heft 4. **Gutberlet.** 'Der Voluntarismus.' [In this, the first of two articles, the writer after pointing out the two trends already known in Scholastic Philosophy, one setting Intellect, the other Will, in the first place, points out that the latter trend is at present in great vogue amongst all thinkers, and proceeds to attack Schopenhauer and Wundt, the extreme exponents of this tendency, whose conception of a 'blind Will' is an absurdity; and the theory of Losky concerning unconscious Will.] **Schindele.** 'Die Aristotelische Ethik.' [This paper concludes by admitting that Aristotle's Ethic is insufficient as regards man's ultimate goal, duty, conscience, the doctrine of Will, and virtue as the mean between two extremes; also that Aristotle in his ideas on politics and slavery was altogether Greek. This explains the animosity of Luther and other modern writers. Nevertheless, the work remains a *monumentum aere perennius*.] **Klein.** 'Ueber die Wichtigkeit der Psychologie für die Naturwissenschaften.' [The writer continues to point out the doctrine of the three souls—vegetative, sensitive and reasonable, together with the Aristotelian theory of intelligence, which creates an abyss between men and brutes. He then concludes by showing how this knowledge would in many branches of science enable us to avoid gross blunders and absurdities, of which he gives examples.] **Straub.** 'Die Aseität Gottes.' [The writer of this, the second of a series of theological papers, here discusses the question

whether Infinity is the metaphysical essence of the Godhead, and affirms that the highest possible intellectual power conceivable is not that essence.]

RIVISTA FILOSOFICA. Anno v., vol. vi., Fasc. iv., September-October, 1903. **G. Vidari.** 'Le concezione moderne della vita, e il compito della Filosofia morale.' [Modern conceptions of life range themselves under four great ideals: The ascetic ideal represented by Tolstoi, under whose hands it has become the negation of nature, history, and civilisation; the æsthetic ideal, represented by Nietzsche, and, under a degraded form, by Rudyard Kipling, which ends by inculcating the enslavement of the weak by the strong; the ideal of liberty, represented by Kant, a potent element in the making of modern history, but becoming discredited through its opposition to active intervention in the readjustment of social inequalities; and the ideal of solidarity which takes this readjustment for its task, but has so far neither a very distinct nor a very practicable programme to offer. Prof. Vidari himself proposes what he calls the doctrine of social and civil personalism, *i.e.*, the integral realisation of human personality; referring us for details to his published works in ethical philosophy.]

A. Ferro. 'La teoria del parallelismo e la teoria dell' influsso fisico. [There is no valid scientific objection to the theory, always held by the common sense of mankind, that mind and matter react on one another.]

G. Vailati. 'Di un' opera dimenticata del P. Gerolamo Saccheri (*Logica demonstrativa*, 1697).' [Saccheri is known to mathematicians as the first forerunner of non-Euclidean geometry. Attention is now called to a forgotten treatise on logic containing a generalised expression of the method of reasoning employed by him in investigating the theory of parallels.] **G. Rigoni.** 'Note psicologiche.' [Asserts against Villa that all acts of consciousness imply, and are constituted by reference to a thinking personality, and denies against Leibniz and his followers the doctrine of unconscious sensations.] *Rassegna Bibliografica*, etc.

IX.—NOTES AND CORRESPONDENCE.

TO THE EDITOR OF "MIND".

SIR,—I must apologise for sending so late a reply to Prof. Fraser's letter (*MIND*, N. S., vol. xi., p. 435) concerning my review of his edition of Berkeley's *Works* (*MIND*, N. S., vol. xi., p. 249). But his letter was not brought to my notice until quite recently, when my attention was accidentally drawn to it. He charges me with a misinterpretation which, he suggests, might have been avoided by "intelligent persons".

The passage in question of Berkeley's "Commonplace Book" is as follows:—

"Mem. Before I have shown the distinction between visible and tangible extension, I must not mention them as distinct. I must not mention M.T. and M.V., but in general M.S., etc.

"Qu. Whether a M.V. be of any colour? a M.T. of any tangible quality?"

Prof. Fraser's footnote reads thus:—

"M.T. = matter tangible; M.V. = matter visible; M.S. = matter sensible. The distinctions in question were made prominent in the 'Essay on Vision'. See Sect. I, 121-45."

I frankly confess my inability to read these lines otherwise than that they mean to infer "M.T." to stand for "matter tangible," etc.

An inquiry into another point touched upon in Prof. Fraser's letter I reserve for a future occasion. But I must take this opportunity to supplement my review, in which I had questioned the accuracy of Prof. Fraser's editorship, adding, however, that the original editions, etc., were, at the time, not within my reach. An opportunity which I have since had, of comparing the "Commonplace Book" with the original MS., has only confirmed my suspicions. The philological principles which appear to have been followed in Prof. Fraser's edition are most unsatisfactory; *e.g.*, in several places he inserts words by which he evidently means to elucidate the sense of the passages in question, without, however, in the least denoting them as his additions. To give but one example, I quote here one passage with those words printed in italics which are not to be found in the original MS.: "Qu. Whether the substance of body or anything else be any more than the collection of *concrete* ideas included in that thing? . . . Of general *abstract* body we can have no idea" (i., 20). In order to enable the possessors of Prof. Fraser's edition to correct at least such mistakes as modify the sense of the passages in which they occur, I quote the following:—

Prof. Fraser's Edition.

- (a) Ask a man, I mean a philosopher . . . (p. 16).
- (b) . . . as I have proved (p. 21).
- (c) . . . the words "that a thing" (p. 28).
- (d) Wherein, I pray you, does the perception of white differ from white men * * * (p. 28).
- (e) An extended may have passive modes of thinking good actions (p. 32).
- (f) . . . other bodies behind those which now seem to touch (p. 32).
- (g) . . . there is an homonymy in the word *thing*, wⁿ apply'd to ideas and volition and understanding and will. All ideas are passive (p. 34).
- (h) The difficulty of consciousness of w^t are never acted surely solv'd thereby (p. 38).
- (i) . . . regard must not be had to its existence (?) * * * First Book (p. 49).
- (k) . . . incorporeal spirit, which is omnipresent . . . (p. 54).
- (l) . . . are displeased with their diseases (p. 56).
- (m) . . . we know the mind agrees with things not by idea but sense . . . (p. 58).
- (n) . . . use of idolatry, use of Epicurism and Hobbism . . . (p. 59).
- (o) . . . encreated and diminish'd by parts (p. 61).
- (p) . . . demonstrable ad infinitum (p. 63).
- (q) Depth or solidity now perceived by sight (p. 66).
- (r) Hereby meere seeing cannot at all judge . . . (p. 78).
- (s) . . . powers of words . . . and simplicity of simile . . . (p. 83).
- (t) The bare passive recognition or having of ideas . . . (p. 89).

Etc.

It is much to be regretted that, in preparing the new edition, these MSS. were not collated afresh, instead of simply reprinting all the faults of the former edition. I will not encroach upon your space by correcting other errors here, but only add that the MSS. just referred to contain one

Original MS.

- (a) Ask a man, I mean a Cartesian.
- (b) . . . as I have proved in Green (see p. 19).
- (c) . . . the words "that" and "thing".
- (d) Wherein, I pray you, does the perception of white differ from white? (The words following, which are illegible, but do *not* begin with "men," form a separate sentence.)
- (e) An extended may have passive modes of thinking, not active.
- (f) . . . other bodies betwixt those which now seem to touch.
- (g) . . . there is an homonymy in the word *thing*, wⁿ apply'd to ideas and volition, understanding and will. All ideas are passive, volitions are active.
- (h) The difficulty of consciousness of w^t one never acted, etc., solv'd thereby.
- (i) . . . regard must not be had to its existence, at least in the first book.
- (k) . . . incorporeal spirit, which is omniscient . . .
- (l) . . . are displeased with their discovery.
- (m) . . . we know the mind as we do hunger, not by idea but sense . . .
- (n) . . . rise of idolatry, rise of Epicurism and Hobbism.
- (o) . . . encreas'd and diminish'd by parts.
- (p) . . . diminishable ad infinitum.
- (q) Depth or solidity not perceived by sight.
- (r) Hereby meerly men cannot at all judge . . .
- (s) . . . pomp of words . . . and simplicity of stile. . . .
- (t) The bare passive reception or having of ideas . . .

volume which was very inadequately described in Prof. Fraser's large biography (p. xii) as follows: "It contains what seems to be a rough draft of parts of the *Discourse on Passive Obedience*; fragments of what was perhaps meant for a sermon on the text, 'Let your zeal be according to knowledge,' a draft of the *Principles of Human Knowledge*, from Sect. 85 to Sect. 145, nearly as in print; a few stray thoughts similar to those in the *Commonplace Book*; some jottings of what may be fragments of letters, in Latin and English, written apparently at Trinity College." What to Prof. Fraser "seems to be a rough draft of parts" of the *Discourse of Passive Obedience* is in reality a complete MS. of that treatise, with some differences from the printed version. What he describes as "fragments of what was perhaps meant for a sermon" is in reality the entire sermon, which is, like the one I mentioned in my review, of greater philosophical interest than any of those included in Prof. Fraser's edition. What he looked upon as "jottings of what may be fragments of letters" are in reality three complete letters, one in English and two in Latin. The latter are not easily legible. But the little trouble of deciphering them is well repaid. For they show the philosopher in correspondence with one of the most renowned scholars of the Continent, and they reveal the earliest recognition which his writings found there. I have published the Latin text with a commentary in the January number of the *Archiv für Geschichte der Philosophie*, to which I refer those interested in the matter.

I am, etc.,

THEODOR LORENZ.

TO THE EDITOR OF "MIND".

SIR,—It is not often judicious to contest the justice of a review, but there is a degree of misrepresentation which compels an answer, lest the author should be deemed to acquiesce in the accuracy of the account that is given. This degree is attained and exceeded by Dr. McDougall in his review of my *Psychology, Normal and Morbid*, in *MIND* of last January; and I therefore ask you to publish this rectification. I regret that a series of domestic troubles have made it somewhat belated.

In common with other critics, Dr. McDougall objects to my inclusion of reasoning processes as part of the subject-matter of psychology. Of this objection I do not complain. But I am entitled to protest when he gives of the logical portion of the book an account which is not only ludicrously inadequate, but incorrect and misleading. "It would hardly seem to be necessary at this time of day," says Dr. McDougall, "to slay again the syllogism as a normal reasoning process." Perhaps not; but this is not what I set myself to do; nor is it what I did. So far from slaying the syllogism as a normal reasoning process, I have endeavoured to restore it to life. I have upheld it as a perfectly valid, though subordinate and infrequent mode of reasoning. "Or," says Dr. McDougall, "to investigate the mortality of Socrates once more." It may or may not be necessary to investigate this point again, but any one reading this expression of Dr. McDougall's would suppose that the object of my investigation was the same as that of previous investigators, *viz.*, to determine the validity of the reasoning by which the conclusion was reached. His readers will gain no inkling that the result of my investigation is to show that the form

All men are mortal

Socrates is a man

Therefore Socrates is mortal

—that this form, which has been given and accepted throughout the ages as the perfect type and exemplar of the syllogism, is not a syllogism at all! It may hardly seem to Dr. McDougall to be necessary to show this, but I should have thought that the demonstration, whether true or false, was of sufficient import to logicians to deserve mention, if my reference to the mortality of Socrates was to be mentioned at all. Merely to sneer at the investigation without giving the result of it, appears to me misleading to his readers. Dr. McDougall might have declined to review the book, or he might from spatial or other considerations have omitted reference to this part of it; but as he does refer to my treatment of the syllogism, and my investigation of the mortality of Socrates, he should have given, as to the one, the view that I do take, instead of ascribing to me a view that I do not take; and as to the other, he should have given the result of the investigation, which is novel and noteworthy even if erroneous, instead of leaving it to be supposed that it was common form.

Whether the normal processes of reasoning are or are not within the proper province of psychology is a matter on which Dr. McDougall holds one opinion and I another; or, as he prefers to put it, I "have not held fast, perhaps not even grasped, the distinction between logic and psychology," but as a matter of fact these processes are included in my book; and one of them and one only is referred to by my reviewer, and it is referred to in such a way as to lead the reader to suppose that it is the only mode of reasoning dealt with in the book. There is not a word in the review to indicate that my investigation of these processes leads me to the discovery of modes of reasoning hitherto undescribed, and to the erection of a system which amounts to a complete revolution and reconstruction of the science of logic. Whether this system is true or false, correct or incorrect, properly or improperly included in a book on psychology, is beside the question. It is there; it is in the book; and to ignore it, and give the readers of the review to suppose that the logical part of the book is nothing but a reslaying of the slain syllogism is a travesty.

My reviewer quotes a passage from the section on Volition and says that "it is not true, and . . . if it were true it would be very far from being (*sic*) an adequate definition of reflex and voluntary attention". Perhaps not, but as it does not pretend to be a definition, the criticism is beside the mark.

He says that I attempt to show that all pleasurable action involves a preponderance of assimilative or anabolic processes, that the pleasure is in fact the psychical expression of this preponderance of anabolism; and he treats this expression as if it were the whole, or at least the gist, of my treatment of pleasure and pain. I admit that I have slipped into an expression which justifies him in fixing this doctrine upon me; but I assert that any fair-minded reader who was concerned to give a true account of the book, and not merely to pick out passages here and there which offer opportunities for smart criticism, would not have presented this view as the whole, or the chief, or the true account of my view of pleasure and pain. Not only have I stated in the introduction that it is the interaction (between the organism and its surroundings) that is *favourable* that is attended by the mental quality of Pleasure, and the interaction that is *harmful* that is accompanied by the mental quality of Pain; but, in the very section from which my reviewer quotes, I have elaborated this doctrine at considerable length and in considerable detail; and have shown, as I believe for the first time, that account must be taken of the influence of the experience on the welfare not only of the

individual, but of the race and of the community also, thereby explaining "inconsistencies, contrarieties and contradictions" in the incidence of pleasure and pain that have hitherto been unaccounted for.

It is with regret that I find it necessary to criticise with some severity a critic whose original work I appreciate and admire, but I cannot allow it to be supposed that I admit Dr. McDougall's account of my book to be accurate, or true, or just. Had the misrepresentation been in a few minor points only, I should not have replied; but when it amounts to a general distortion, coupled with a suppression of the most important features in the book, I am bound to rectify the misrepresentation.

I am, Sir, yours, etc.,

CHAS. MERCIER.

FLOWER HOUSE,
CATFORD, S.E.

In Dr. Bosanquet's Critical Notice of Prof. Sidgwick's *Lectures on the Ethics of T. H. Green, Herbert Spencer and J. Martineau* he points out (MIND, July, 1903, p. 384) that "something has gone wrong, possibly in the revision," on page 26. On referring to the author's MS. it appears that what has gone wrong is, that a *not*, occurring in the MS. and clearly required by the sense of the passage, has—through some slip of transcriber or proof-reader—dropped out of the printed page. The sentence on page 26 which is referred to, should read: "Green's argument to show that 'the principle of action' is not 'a will which is not desire' seems to me therefore to be vitiated by a false opposition of alternatives".

THE EDITOR OF THE LECTURES.